

### 4.7 Jurisdictional Aquatic Resources

### 4.7.1 Boulder Brush Corridor

A formal jurisdictional delineation was conducted in June and July 2018 for the Boulder Brush Corridor. Additional delineation fieldwork was performed in September 2018. The jurisdictional areas in the Boulder Brush Corridor consist of tributaries to Tule Creek, Tule Creek itself, and tributaries to Carrizo Creek (see Figure 4-1 series). The majority of the Boulder Brush Corridor is characterized by small ephemeral channels, draining runoff, and surface flow from the hillslopes and roads that drain toward Tule Creek. Many of these features do not directly connect to Tule Creek, since these surface features abate into uplands prior to a direct conveyance into Tule Creek. However, these features may have a subsurface connection to downstream receiving waters. Overall, the features in the Boulder Brush Corridor are dry and lack evidence of recent flows, which is likely due to lack of rainfall in recent years.

Approximately 1.00 acres of the Boulder Brush Corridor is composed of non-wetland stream features considered jurisdictional waters of the United States and state (see Figure 4-1 series). Additionally, 4.03 acres of riparian habitat regulated by CDFW is associated with Tule Creek. Based on the jurisdictional investigation in this area, the riparian habitat did not meet the criteria for a federally defined wetland (e.g., the co-occurrence of hydrophytic vegetation, hydric soil, and wetland hydrology). However, these small riparian communities are associated with (and dependent on) ephemeral stream features and do qualify as riparian habitat regulated by CDFW. Table 4-5, Data Station Results, includes the results of the data station samples. Attachment K, Data Station Forms, includes the data station forms and Ordinary High Water Mark Datasheets representing the non-wetland waters mapped in the Boulder Brush Corridor. Table 4-6, Waters and Wetlands of the U.S., State, and County RPO Wetlands within the Boulder Brush Facilities, summarizes the acreage and linear feet of the jurisdictional features.

Table 4-5
Data Station Results

Sample Point	Hydrophytic Vegetation	Hydric Soils	Hydrology
1	No	No	Yes
2A	Yes	No	Yes
2B	No	No	Yes
2C	No	No	No
3	No	Yes	Yes
4a	Yes	No	No

Table 4-5
Data Station Results

Sample Point	Hydrophytic Vegetation	Hydric Soils	Hydrology
4b	No	No	No
4c	Yes	No	Yes
4d	Yes	No	Yes
4e	No	No	Yes
4f	No	No	No

Table 4-6
Waters and Wetlands of the U.S., State, and County RPO Wetlands within the Boulder
Brush Corridor

	Type of Habitat	Type of Habitat			Regulatory
Feature Type	(Oberbauer et al. 2008)	(Cowardin et al. 1979)	Acres	Linear Feet	Authority
Non-wetland waters	Waters of the United States/unvegetated channel – ephemeral	Riverine; Unconsolidated Bottom, Sand, Ephemerally Flooded, Fresh	0.61	16,035	USACE, CDFW, RWQCB
Non-wetland waters	Waters of the United States/unvegetated channel – intermittent	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Fresh	0.39	2,157	USACE, CDFW, RWQCB, County RPO
Riparian habitat	Southern riparian forest	Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh	0.64	N/A	CDFW, County RPO
Emergent wetland	Emergent wetland	Riparian; emergent, lentic, riparian	3.39	N/A	CDFW, County RPO
	Total Potenti	al Jurisdictional Waters	5.03	18,192	_

**Note:** Totals do not sum due to rounding.

### **Waters of the United States**

Tule Creek is located within the southern portion of the Boulder Brush Corridor. The majority of the Boulder Brush Corridor is characterized by small ephemeral channels, draining runoff, and surface flow from the hillslopes and roads that are tributary to Tule Creek. Tule Creek has a wide



floodplain with occasional low-flow channels where it receives surface flow, but the majority of the floodplain appears to be supported by subsurface flow, indicated by the patches of riparian herbs, shrubs, and trees within portions of the floodplain. There are sections within the Boulder Brush Corridor where data was collected within Tule Creek that were dominated by upland species, such as big sagebrush scrub, tall tumblemustard, and cheatgrass. The northern portion of the Boulder Brush Corridor (near the switchyard) includes ephemeral non-wetlands waters that are tributary to Carrizo Creek. Many of these ephemeral channels have been directly impacted by offroad vehicle use (predominantly motorized dirt bikes). The informal trails created by these activities often bisect the channel or the length of a channel is used as the dirt bike trail.

Data station samples were taken within, and adjacent to, the defined channel in Tule Creek and within the overall floodplain (Figures 4-1n through 4-1p). USACE requires three parameters to qualify as a wetland (USACE 1987), and none of the data station samples resulted in positive indicators for all three criteria (see Table 4-5). Therefore, the large channel in Tule Creek and smaller channels to the north are considered an intermittent non-wetland waters of the United States.

None of the ephemeral drainages (tributaries to Tule Creek and Carrizo Creek) within the Boulder Brush Corridor supported hydrophytic vegetation; therefore, no data station samples were conducted in these areas. These features are considered ephemeral non-wetland waters of the United States.

Tule Creek receives surface and subsurface flows from headwaters originating in the Laguna Mountains northwest of the Boulder Brush Corridor. It continues draining in a downward gradient in an east and southeast orientation into Tule Lake, located approximately 4.5 miles southeast of the Boulder Brush Corridor. Water then flows into Tule Canyon, which eventually outlets into Carrizo Creek where it drains north/northeast. Carrizo Creek turns into Carrizo Wash and connects to San Felipe Wash and eventually drains into the Salton Sea to form a significant nexus to a traditional navigable water. Therefore, the waters within the Boulder Brush Corridor are considered subject to regulation by USACE.

### Streambed or Riparian Habitat of the State

CDFW regulates streambeds and riparian vegetation associated with streambeds. All of the non-wetland waters of the United States are also streambeds regulated by CDFW. Additionally, the riparian vegetation (i.e., southern riparian forest and emergent wetland) associated with Tule Creek is considered riparian habitat regulated by CDFW.

Non-wetland waters are also regulated under Section 401 of the Clean Water Act and as such, any impacts to these features require a Section 401 Certification from the RWQCB.

### **Resource Protection Ordinance Wetland Determination**

Lands having one or more of the following attributes are defined as "wetlands" in the RPO: (aa) At least periodically, the land supports a predominance of hydrophytes (plants whose habitat is water or very wet places); (bb) The substratum is predominantly undrained hydric soil; or (cc) An ephemeral or perennial stream is present, whose substratum is predominantly non-soil and such lands contribute substantially to the biological functions or values of wetlands in the drainage system (County of San Diego 2012).

RPO wetlands have been identified at three locations within the Boulder Brush Corridor. The northern segment of Tule Creek supports three intermittent stream channels and emergent wetlands. This entire segment is considered RPO wetlands.

The southern segment of Tule Creek supports red willow, salt cedar (*Tamarix ramosissima*), mulefat (*Baccharis salicifolia* ssp. *salicifolia*), coyote brush (*Baccharis pilularis*), big sagebrush, bromes (*Bromus* spp.), and other species (Figure 4-1 series). There is a small patch of Mexican rush near the edge of the floodplain, but it was too small to map separately. Overall, the overstory of the southern arroyo willow riparian forest is composed of red willow and the understory is dominated by upland species. The intermittent channel located in the understory of the southern arroyo willow riparian forest associated with Tule Creek is also considered RPO wetlands (Figure 4-1 series).

There is another area of southern arroyo willow riparian forest located along Ribbonwood Road (Figure 4-1 series). There is not a predominance of hydrophytic vegetation in the herb or shrub strata within either of these areas. Because the southern arroyo willow riparian forest supports red willow, salt cedar, and mulefat, these areas are considered a wetland under the RPO definition (County of San Diego 2012).

The remaining features within the Boulder Brush Corridor are ephemeral non-wetland waters or streambeds. Based on the lack of hydric soils and hydrophytic vegetation in the ephemeral drainages in the Boulder Brush Corridor, and the presence of well-drained soil, the ephemeral drainages do not have the biological functions of a wetland, nor do they have populations of wetland dependent species, and therefore are not considered a RPO wetland.

### **Resource Protection Ordinance Wetland Buffer**

The RPO prescribes a buffer area around wetlands to "protect the environmental and functional habitat values of the wetland," and buffers range from 50 feet to 200 feet from the edge of the wetland (County of San Diego 2012). The following examples provide guidance on determining appropriate buffer widths.

- A 50-foot wetland buffer would be appropriate for lower quality RPO wetlands where the wetland has been assessed to have low physical and chemical functions, vegetation is not dominated by hydrophytes, soils are not highly erosive and slopes do not exceed 25%.
- A wetland buffer of 50–100 feet is appropriate for moderate to high quality RPO wetlands which support a predominance of hydrophytic vegetation or wetlands within steep slope areas (greater than 25%) with highly erosive soils. Within the 50- to 100-foot range, wider buffers are appropriate where wetlands connect upstream and downstream, where the wetlands serve as a local wildlife corridor, or where the adjacent land use(s) would result in substantial edge effects that could not be mitigated.
- Wetland buffers of 100–200 feet are appropriate for RPO wetlands within regional wildlife
  corridors or wetlands that support significant populations of wetland-associated sensitive
  species or where stream meander, erosion, or other physical factors indicate a wider buffer
  is necessary to preserve wildlife habitat.
- Buffering of greater than 200 feet may be necessary when an RPO wetland is within a regional corridor or supports significant populations of wetland-associated sensitive species and lies adjacent to land use(s) which could result in a high degree of edge effects within the buffer. Although the RPO stipulates a maximum of 200 feet for RPO wetland buffers, actions may be subject to other laws and regulations (such as the Endangered Species Act) that require greater wetland buffer widths.

Given the predominance of hydrophytic vegetation in the tree strata and general lack of hydrophytic vegetation in the herb strata, the RPO wetland surrounding the southern segment of Tule Creek is considered to be moderate quality. There is an existing dirt road that bisects the RPO wetlands associated with Tule Creek and surface water is diverted through a culvert below the road. Adjacent land uses include off-road vehicle activities but is otherwise undeveloped. The RPO wetland along Ribbonwood Road is an underdeveloped channel adjacent to the road that supports a small patch of southern willow riparian forest intermixed with big sagebrush; the understory is composed of upland shrub and herbaceous species (i.e., big sagebrush, cheatgrass, seaside heliotrope, and western ragweed). Both areas of RPO wetlands have been altered by roads. Based on this information, a 50-foot RPO wetland buffer is appropriate to buffer these areas against edge

effects and maintain existing wildlife corridors (Figures 4-1n through 4-1q). A 100-foot buffer is applied to the northern segment of Tule Creek. While this area contains moderate to high quality RPO wetlands, which support a predominance of hydrophytic vegetation, it is not considered a regional wildlife corridor because the entire site is open and undeveloped and wildlife are free to traverse throughout the site, nor does it support significant populations of wetland-associated sensitive species. Thus, a buffer greater than 100-feet is not necessary.

### 4.7.2 Campo Corridor

A formal jurisdictional delineation was conducted in 2017 and 2018 for the Campo Corridor. Overall, the features in the Campo Corridor are dry and lack evidence of recent flows, which is likely because of lack of rainfall in recent years.

The jurisdictional aquatic resources in the Campo Corridor consist of tributaries to Campo Creek and Tule Creek. Small ephemeral channels collecting runoff and surface flow from the hillslopes and roads that drain toward Campo Creek characterize the majority of the Campo Corridor. There is an unnamed drainage with a wide floodplain bisecting the Campo Corridor in a north—south direction. This floodplain has a low-flow channel where it receives surface flow that drains into Campo Creek, but the majority of the floodplain appears to be supported by subsurface flow, indicated by the patches of riparian herbs, shrubs, and trees within portions of the floodplain; the channel is considered an intermittent non-wetland water of the United States. There are sections of the floodplain dominated by upland species, such as big sagebrush scrub, tall tumblemustard, and cheatgrass. There are also a few drainages in the northeast that appear to drain east and connect to Tule Creek. None of the ephemeral drainages (both tributaries to Campo Creek and Tule Creek) within the Campo Corridor supported hydrophytic vegetation; therefore, no data station samples were conducted. These features are considered ephemeral non-wetland waters of the United States. Some features appear to be completely isolated from Campo Creek or Tule Creek as they completely abate into uplands and are not considered waters of the United States.

Campo Creek receives surface and subsurface flows from the surrounding hills and mountains. Campo Creek flows west through Campo Valley and into Mexico where it connects to Tecate Creek. Tecate Creek continues flowing west and northwest and eventually enters the U.S. near Marron Valley where it flows into the Tijuana River. The Tijuana River outlets into the Pacific Ocean at Imperial Beach. Therefore, the waters within the Campo Corridor are considered subject to regulation by USACE.

Tule Creek receives surface and subsurface flows from headwaters originating in the Laguna Mountains northwest of the Campo Corridor. It continues draining in a downward gradient in an east

and southeast orientation into Tule Lake, located approximately 4.5 miles southeast of the Campo Corridor. Water then flows into Tule Canyon, which eventually outlets into Carrizo Creek where it drains north/northeast. Carrizo Creek turns into Carrizo Wash and connects to San Felipe Wash and eventually into the Salton Sea to form a significant nexus to a traditional navigable water. Therefore, the waters within the Campo Corridor are considered subject to regulation by USACE.

The Campo Corridor supports non-wetland stream features, wetland habitat associated with the unnamed channel and floodplain, as well as some basins and seeps/springs that are all considered jurisdictional waters of the United States (Figure 4-2 series). One seep/spring supports emergent wetland that is otherwise in a completely upland area in the northeast corner of the Campo Corridor (DS 1a–b). Another seep/spring supports a small freshwater marsh adjacent to a dirt road near Live Oak Trail (DS 2a–b, DS 3). Emergent wetland and southern willow scrub, and valley Sacaton grassland occur within the unnamed channel/floodplain and meet the definition of a three-parameter wetland (DS 5a–b, DS 6a–b, DS 7a–b, and DS 8a–d). Table 4-7 includes the results of the data station samples within the Campo Corridor. The data station forms and OHWM datasheets representing the non-wetland waters mapped in the Campo Corridor are included as an appendix to the *Campo Wind Project Biological Technical Report*. These features are shown on Figure 4-2 series.

Table 4-7
Data Station Results – Campo Corridor

Sample Point	Hydrophytic Vegetation	Hydric Soils	Hydrology	Wetland Vegetation
DS 1a	Yes	Yes	Yes	Emergent wetland
DS 1b	Yes	Yes	No	N/A
DS 2a	Yes	No	No	N/A
DS 2b	Yes	No	No	N/A
DS 3	Yes	Yes	Yes	Freshwater marsh
DS 4	No	No	Yes	N/A
DS 5a	Yes	Yes	Yes	Emergent wetland
DS 5b	No	No	Yes	N/A
DS 6a	No	No	Yes	N/A
DS 6b	No	Yes	Yes	N/A
DS 7a	Yes	Yes	Yes	Emergent wetland
DS 7b	Yes	No	No	N/A
DS 8a	Yes	Yes	Yes	Emergent wetland
DS 8b	Yes	Yes	Yes	Emergent wetland
DS 8c	Yes	Yes	Yes	Southern willow scrub
DS 8d	No	Yes	Yes	N/A

# 4.8 Habitat Connectivity and Wildlife Corridors

Wildlife corridors are defined as areas that connect suitable wildlife habitat in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features, such as canyon drainages, ridgelines, or areas with vegetation cover, provide corridors for wildlife travel. Wildlife corridors are important because they provide access to mates, food, and water; allow the dispersal of wildlife from high-density areas; and facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. The linkage represents a potential route for gene flow and long-term dispersal. Habitat linkages may serve as both habitat and avenues of gene flow for small animals such as passerine birds, small mammals, reptiles and amphibians. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as "stepping stones" for dispersal.

The Boulder Brush Corridor is located within the Peninsular Range. Jacumba Mountains are located to the east. In-Ko-Pah, Tierra Blanca, and Sawtooth Mountains are located to the north, and Laguna Mountains are located to the northwest. The private land portion of the Project site is located in McCain Valley, a low-lying area between these mountains that has little topographical relief with the exception of one hill located in the southwest corner of the Project site. Tule Creek runs north/south within the southern half of the Project site. There is what appears to be a manufactured impoundment along Tule Creek just north of the western portion of the Project site.

The Project site is located approximately 2.1 miles west of designated critical habitat for Peninsular bighorn sheep (Figure 2-1). The site is likely too removed from the eastern-sloped open mountainous terrain that bighorn sheep prefer, and the Project site is too densely vegetated to provide suitable habitat for the species. In addition, the Project site does not provide intermountain connectivity habitat between occupied mountain ranges and Peninsular bighorn sheep have not been identified in the area. There are no active water impoundments or stock ponds within the Project site. While there are potential water sources approximately 2.5 and 3.75 miles southeast that could attract bighorn sheep to the area, they are located in areas outside of the mountain ranges and thus unlikely to attract bighorn sheep. Based on their known range, USFWS Critical Habitat, and unsuitable habitat between the site and known range, this species is not expected to occur within the site nor use the site for movement. Additionally, the USFWS agreed with this assessment.

The Campo Corridor is located just west and southwest of the Boulder Brush Facilities portion of the Project, with the Cleveland National Forest to the north and Baja California Mexico to the south. Habitat in the Reservation is open with occasional roads, residences and other buildings. There are a couple of wide floodplains with intermittent channels in the central portion of the Campo Corridor as well as lots of small ephemeral washes throughout the Reservation.

Wildlife corridors are considered sensitive by resource and conservation agencies. For the most part, the areas in and around the Boulder Brush Corridor have limited human disturbance and similar vegetation communities. The Project site does have disturbance from off-road vehicles. The Boulder Brush Corridor is not readily identifiable as a corridor or linkage per se, because wildlife movement is not constrained or directed through any particular area within the Boulder Brush Corridor. The Boulder Brush Corridor is, however, still included within a Core Wildlife Area, due to its size and the undeveloped land in the surrounding area (County of San Diego 2010a).

Both the Boulder Brush Corridor and Campo Corridor are located in the same general area of rural southeast San Diego County. The vicinity is generally surrounded by undeveloped landscapes to the north and east, with rural residential scattered to the south and/or west. I-8 is located south of the private land portion of the Project site and bisects the Campo portion of the Project site. Wildlife currently are able to traverse both portions of the Project site and surrounding undeveloped areas in an unencumbered manner. This topography does not pose difficulties for most wildlife use. While mule deer, coyote, cougar, bobcat, and other species are readily able to scale steep slopes, this site has few steep slopes; most of the hills are gently rolling. Much of the site is comprised of scrub habitat providing cover opportunities for all sizes of wildlife, ranging from small mammals to mule deer. The oak trees provide nesting, foraging, and cover opportunities for both raptors and songbirds, while the open floodplain areas of Tule Creek provide foraging opportunities for a variety of birds, invertebrates, and small mammals. Larger mammals such as mule deer and cougars tend to take the "path of least resistance" and are as likely to utilize the off-road trails and dirt roads as the other relatively open scrub communities when traveling through the site, particularly in nondaylight hours. Further, the Project is situated adjacent to, or near, Bureau of Land Management open space, which allows for unhindered movement.

"Sensitive habitat lands" as defined by the County (County of San Diego 2012) include wildlife corridors. The Boulder Brush Corridor is not likely to be part of a regional corridor or linkage for large mammals due to the lack of topography surrounding the site that would constrain wildlife to

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The County of San Diego biological guidelines (County of San Diego 2010a) define a Core Wildlife Area as a, block of habitat that is typically 500 acres or more. Smaller areas with particularly valuable resources may also be considered a core wildlife area.

traverse only through the area. Since wildlife can move throughout the Boulder Brush Corridor unconstrained, the site is not considered a sensitive habitat land with regard to wildlife corridors.

While I-8 represents a significant barrier to larger mammal movement, the Reservation may serve as a portion of home ranges for larger mammals, such as mule deer and cougar.

Both the Boulder Brush Corridor and the Campo Corridors are located within the Pacific Flyway, which is a major north–south migration route for birds that travel between North and South America. This is a broad-front route that covers much landscape. In Southern California, birds typically use the coast and inland areas. The Pacific Coast route is used by gulls, ducks, and other water birds. The longest and most important route of the Pacific Flyway is that originating in northeastern Alaska. This route, which includes most waterfowl and shorebirds, passes through the interior of Alaska and then branches such that large flights continue southeast into the Central and Mississippi Flyways, or they turn in a southwesterly direction and pass through the interior valleys of California, ending or passing through the Salton Sea. The southward route of long-distance migratory land birds of the Pacific Flyway that typically overwinter south of the United States extends through the interior of California to the mouth of the Colorado River and on to their winter quarters, which may be located in western Mexico (USGS 2013b).

The Salton Sea, approximately 40 miles northeast of the Boulder Brush Corridor, is an important stopover for many birds that travel inland. The inland Pacific Flyway migration route, which is focused on a stopover at the Salton Sea, is east of the Boulder Brush and Campo Corridors. A study from 1985 to 1999 focused on shorebird migration and recorded avian use at the Salton Sea and adjacent Imperial Valley. Large numbers of shorebirds, including black-necked stilt (Himantopus mexicanus), American avocet (Recurvirostra americana), western sandpiper (Calidris mauri), and dowitchers (Limnodromus spp.) were recorded during migration periods (Shuford et al. 2002). In addition, the study showed that birds traveling to the Salton Sea use the sea not only as a migratory stopover, but also as a wintering area for many species, including the mountain plover (Charadrius montanus) (Shuford et al. 2002). Migration timing varies from species to species, and for some, there is little documentation of the timing; for others, arrivals and departures have been well documented (Unitt 2004). In general, bird migration occurs March through April, and August through November. The Corridors do not support any bodies of water or wetlands that attract large migration stopovers or attractants for avian and bat species. The closest large bodies of water to the Project site are Tule Lake, located almost 4.5 miles southeast, and Morena Reservoir, located approximately 13 miles west. Therefore, although birds likely migrate over the site and certain birds may forage on site, the Project site is not considered a stopover for birds migrating to and from the Salton Sea, particularly with the agricultural fields and irrigation resources available in the El Centro and Brawley areas south of the Salton Sea.

### 5 PROJECT IMPACTS

This section addresses direct, indirect, and cumulative significant impacts, as defined by the County's standards of significance to biological resources that would result from implementation of the Boulder Brush Facilities. A number of mitigation measures are included to avoid, minimize, and/or mitigate potential impacts to less-than-significant levels; these measures are summarized in Section 11, Summary of Project Impacts and Mitigation, of this report.

As discussed in the Introduction, this report also describes the Campo Wind Facilities portion of the Project, in order to support the County's review of the Project as a whole under CEQA. However, the approval of the Campo Wind Facilities portion of the Project on tribal land falls under the jurisdiction of the BIA, subject to NEPA. Neither the state nor the County have the ability to regulate or mitigate impacts to biological resources that arise from development on the Reservation.

**Direct impacts** refer to 100% permanent loss of a biological resource. For purposes of this analysis, the direct impacts associated with the Boulder Brush Facilities refers to the limits of grading (i.e., the development footprint) for installation of the poles, access roads, the switch yard and high-voltage substation. Temporary direct impacts are associated with grading for permanent roads, a temporary construction road, a laydown yard needed for installation of the power poles, a parking area during construction, a temporary concrete batch plant, and fuel modification zones (FMZ) associated with the batch plant and laydown yard. To provide erosion control, slope stabilization, or other necessary function, areas of temporary direct impacts would be replanted with native vegetation following construction. Areas of temporarily impacts waters would be re-contoured to pre-disturbance elevations to ensure the continued functions of these resources post-construction. However, since the Boulder Brush developer is not seeking restoration credit for impacts, all direct impacts to biological resources are considered permanent. Direct impacts were quantified by overlaying the survey data layers on GIS-located biological resources. In addition, the Boulder Brush Facilities may have direct impacts to biological resources during operations and maintenance (O&M). These impacts could include bird and/or bat electrocutions at overhead line locations. Direct impacts are shown in the Figure 5-1, Impacts to Biological Resources -Boulder Brush - Index and Figure 5-1, Impacts to Biological Resources - Boulder Brush mapbook. Decommissioning would involve activities similar to construction though no new areas of disturbance and thus would not result in additional direct impacts.

Long-term permanent direct impacts associated with the portion of the Project on the Campo Reservation (Campo Wind Facilities) refers to the impacts within the limits of grading for the wind turbines, access roads, and associated components (i.e., collector substation, O&M building, parking, batch plant, meteorological towers). These direct impacts are shown in the Figure 5-2,

Impacts to Biological Resources - Reservation – Index and Figure 5-2, Impacts to Biological Resources - Reservation mapbook. There are no temporary impacts described for the Campo Wind Facilities.

**Indirect impacts** are reasonably foreseeable effects caused by Boulder Brush Facilities implementation on remaining or adjacent biological resources outside the direct limits of grading and indirect impacts associated with O&M of the permanent Boulder Brush Facilities components. Indirect impacts may affect areas within the defined Boulder Brush Corridor, but outside the limits of grading, including non-impacted areas and areas outside the development footprint, such as downstream effects. During construction and decommissioning of the Boulder Brush Facilities, temporary indirect impacts may include dust and noise, which could temporarily disrupt habitat and species' vitality; changes in hydrology; disruption of wildlife activity due to increased human activity; habitat fragmentation; invasive species; construction-related chemical pollutants (e.g., gas, oil and other fluids used by construction equipment); and alternation of natural fire regime. However, all Boulder Brush Facilities grading on the private land portion of the Project would be subject to restrictions and requirements that address erosion and runoff, including the federal Clean Water Act and the National Pollution Discharge Elimination System program, preparation of a SWPPP, and submittal of the County Standard Project Stormwater Quality Management Plan (including all applicable construction stormwater best management practices (BMPs) and postconstruction source control BMPs). Projects east of the Pacific/Salton Sea Divide are subject to standard project requirements per the County BMP Design Manual and, as applicable, Post-Construction Standards of the Construction General Permit. Moreover, the Boulder Brush Facilities would be subject to the County Watershed Protection, Stormwater Management, and Discharge Control Ordinance. These programs are expected to minimize Boulder Brush Facilities impacts with respect to erosion/runoff, altered hydrology, and potential impacts from chemical pollutants. Permanent indirect impacts to adjacent open space may include intrusions by humans and domestic pets, noise, lighting, invasion by exotic plant and wildlife species, effects of chemical pollutants (herbicides, and other hazardous materials), runoff from developed areas, litter, habitat fragmentation, and hydrologic changes.

**Cumulative impacts** refer to the combined environmental effects of the proposed Project and other past, present and probably future projects. In some cases, the impact from a single project may not be significant, but when combined with other projects, the cumulative impact may be significant. This report does not include analysis of cumulative impacts; this analysis is being prepared separately for direct inclusion in the Environmental Impact Report being prepared for the Project.

### 5.1 Riparian Habitat or Sensitive Vegetation Communities

### 5.1.1 Boulder Brush Facilities

### 5.1.1.1 Direct Impacts to Riparian Habitat or Sensitive Vegetation Communities

### **Temporary Direct Impacts**

**Impact V-1:** Temporary Direct Impacts to Riparian Habitat or Sensitive Vegetation Communities within the Boulder Brush Corridor

There are temporary direct impacts associated with the Boulder Brush Facilities development footprint, including construction impacts from road grading, pole installation, a laydown yard needed for installation of the power poles, a parking area during construction, a temporary concrete batch plant, and FMZs associated with the batch plant and laydown yard. Areas temporarily impacted by these activities will be replanted with native vegetation following Boulder Brush Facilities construction. In addition, there will be a 12-foot wide construction access road which crosses Tule Creek (see Figure 5-1h). This road will be utilized only during construction to drive a pull truck across it to string cables, and will not be a permanent access road. Vegetation in this area will be trimmed or disked and no gravel or pavement will be placed within the creek. Following Boulder Brush Facilities construction, the area will be re-countered and replanted to restore Tule Creek to pre-project conditions. However, for habitat mitigation purposes, these impacts are considered permanent and mitigated through habitat conservation. Additionally, construction-related temporary direct impacts to vegetation communities could result from clearing, trampling, or grading of vegetation outside of the development footprint in the absence of avoidance and mitigation measures. These potential impacts could damage vegetation communities and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 7.1, Guidelines for the Determination of Significance, of this report.

### Permanent Direct Impacts

**Impact V-2:** Permanent Direct Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Direct impacts to vegetation communities would occur as a result of grading for the installation of poles, access roads, the switchyard and substation (i.e., the development footprint). Table 5-1 shows the acreage of direct impacts to vegetation communities in the Boulder Brush Facilities development footprint as a result of these activities (see Figure 5-1 series).

Per the County's Report Format and Content Requirements (County of San Diego 2010b), the oak root protection zone was created by establishing a 50-foot buffer around all non-impacted oak woodlands in the Boulder Brush Corridor, measured outward from the outside edge of the canopy. The oak root protection zone is shown in the Figure 5-1 series.

Table 5-1

Permanent and Temporary Impacts to Vegetation Communities and Land Cover Types
within the Boulder Brush Facilities

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/Oberbauer Code <sup>a</sup> )	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Total Impacts (Acres)
Disturbed and	Disturbed Habitat (11300)	5.5	2.4	8.0
Developed Areas (10000)	Developed (12000)	0.01	<0.01	0.01
	Disturbed and Developed Areas Subtotal <sup>1</sup>	5.6	2.4	8.1
Scrub and Chaparral	Montane buckwheat scrub (32800) <sup>b</sup>	5.7	11.3	17.0
(30000)	Big Sagebrush Scrub (35210) <sup>b</sup>	2.7	6.4	9.2
	Granitic Northern Mixed Chaparral (37131)b	9.6	23.8	33.4
	Granitic Chamise Chaparral (37210)b	1.1	2.5	3.6
	Red Shank Chaparral (37300) <sup>b.</sup>	6.9	11.4	18.3
	Semi-Desert Chaparral (37400) <sup>b</sup>	10.4	20.7	31.1
	Scrub and Chaparral Subtotal <sup>c</sup>	36.5	76.1	112.6
Grasslands, Vernal Pools, Meadows, and other Herb Communities (40000)  Wildflower field (42300) <sup>b</sup>		0.6	3.1	3.7
Grasslands, Vernal I	Pools, Meadows, and other Herb Communities Subtotal <sup>c</sup>	0.6	3.1	3.7
Bog and Marsh (50000)	og and Marsh (50000) Emergent Wetland (52440)b		0.2	0.2
	Bog and Marsh Subtotal <sup>c</sup>	0	0.2	0.2
Riparian and Bottomland Habitat (60000)	Southern Arroyo Willow Riparian Forest (61320) <sup>b</sup>	0.2	0.2	0.4
	Riparian and Bottomland Habitat Subtotal	0.2	0.2	0.4
Woodland (70000)	Coast Live Oak Woodland (71160)b	0.9	4.5	5.4
	Open Coast Live Oak Woodland (71161) <sup>b</sup>	0	0.1	0.1
	Woodland Subtotal <sup>c</sup>	0.9	4.6	5.6

Table 5-1
Permanent and Temporary Impacts to Vegetation Communities and Land Cover Types
within the Boulder Brush Facilities

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/Oberbauer Code <sup>a</sup> )	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Total Impacts (Acres)
Waters of the United States/State	Unvegetated Stream Channel	0.1	0.3	0.4
Waters of the United States/State Subtotal		0.1	0.3	0.4
	Total <sup>c</sup>	43.9	87.0	130.9
	Oak Root Zoned	2.0	5.3	7.3

- a Holland (1986) as modified by Oberbauer et al. (2008).
- b Considered special status by the County (County of San Diego 2010a).
- <sup>c</sup> Totals may not sum due to rounding.
- d The Oak Root Zone is an overlay and does not count toward the overall acreage total.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 7.1, Guidelines for the Determination of Significance, of this report.

# 5.1.1.2 Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities

### **Temporary Indirect Impacts**

**Impact V-3:** Temporary Indirect Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Temporary indirect impacts to sensitive vegetation communities outside of the Boulder Brush Facilities development footprint could primarily result from construction activities (**Impact V-3**). The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the vegetation communities. Potential temporary indirect impacts that could affect all the sensitive vegetation communities that occur near the Boulder Brush Facilities development footprint are described in detail below.

**Increased Human Access.** Increased human access during construction could result in the potential for trampling of vegetation outside of the development footprint, as well as soil compaction, and could affect the viability of plant communities. Trampling can alter the ecosystem, creating gaps in vegetation and allowing exotic, non-native plant species to become established, leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. Increased human activity increases the risk for damage to sensitive vegetation communities. The Boulder Brush Corridor is already subject to human activity (e.g., dirt bike use, hiking, biking, horseback riding) and no new public access roads will be built as part of the proposed project.

**Increased Predation or Competition from Domestic Animals.** No domestic animals will be present on site related to the Boulder Brush Facilities.

Pests or Exotic Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list adverse effects of non-native species in natural open areas, including that exotic plants compete for light, water, and nutrients, and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species, unique vegetation communities, and subsequently suitable habitat for special-status wildlife species. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for plants within sensitive vegetation communities.

**Increasing Noise and/or Nighttime Lighting.** Noise would not affect vegetation communities. Lighting associated with possible nighttime work would be limited to vehicle deliveries and not expected to affect adjacent vegetation communities.

Altering Natural Drainage. There are temporary impacts to non-wetland waters and riparian habitat. Construction could result in hydrologic and water-quality-related impacts adjacent to, and downstream of, the construction area. Hydrologic alterations include changes in flow rates and patterns in streams, which may affect adjacent and downstream vegetation communities. Direct impacts can also remove native vegetation and increase runoff from roads and other paved surfaces, resulting in increased erosion and transport of surface matter into vegetation communities. Altered erosion, increased surface flows, and underground seepage can allow for the establishment of non-native plants. Changed hydrologic conditions can also alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.



**Generation of Fugitive Dust**. Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.

Alteration of Natural Fire Regime. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and in some cases, result in permanent transition of the vegetation to non-native communities, such as annual grassland and weedy communities (Keeley 1987; Malanson and O'Leary 1982; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation.

Construction is anticipated to require up to 9 months to complete. Up to 48 workers on a daily basis would be involved in construction of the Boulder Brush Facilities. The following issues have been identified as potential risks of fire ignition associated with particular construction activities: 1) vegetation clearing for access roads, gen-tie line pole locations, and the high-voltage substation and switchyard sites; 2) off-road vehicle use could cause an ignition (e.g., catalytic converter, faulty brakes, etc.); 3) idling or parked vehicles and equipment in areas of grass and other vegetation; 4) hot work activities conducted during a Red Flag Warning<sup>9</sup>; 5) construction waste that has accumulated on site associated with electrical equipment could create a fire hazard and shall be contained within metal containers; and 6) operation of generators, pumps, or other equipment capable of producing sparks or exhaust heat to cause ignition.

**Chemical Pollutants.** Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect sensitive vegetation communities. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants. No herbicides would be used during construction.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, described in Section 7.1 of this report.

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The National Weather Service may issue Red Flag Warnings (RFW) at any time when humidity and wind conditions meet pre-determined thresholds that would promote fire ignition and spread. Because the majority of acreage burned in California occurs during RFW weather conditions, certain construction activities, such as hot work, would be limited to low fire hazard, non-hot work, until the RFW has been lifted.

### **Permanent Indirect Impacts**

**Impact V-4:** Permanent Indirect Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Permanent (operation-related) indirect impacts could result from the proximity of the Boulder Brush Facilities to sensitive vegetation communities after construction, including impacts related to operation and maintenance (**Impact V-4**). Operation and maintenance activities would occur within the development footprint. The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the vegetation communities. Each of these potential indirect impacts is discussed as follows.

**Increased Human Access.** The Boulder Brush Facilities would not provide new or additional public access roads or gates. The Boulder Brush Corridor is already subject to human activity (e.g., dirt bike use, hiking, biking, horseback riding), which is expected to persist after Project completion.

**Increased Predation or Competition from Domestic Animals.** No domestic animals will be present on site related to the Boulder Brush Facilities.

Pests or Exotic Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list adverse effects of non-native species in natural open areas, including that exotic plants compete for light, water, and nutrients, and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species, unique vegetation communities, and subsequently suitable habitat for plant and special-status wildlife species. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for plants within sensitive vegetation communities. Landscaping stock could bring in Argentine ants or other pests that could compete with native wildlife. However, landscaping will be minimal and only around the O&M building.

Altering Natural Drainage. There are permanent impacts to non-wetland waters. Hydrologic alterations include changes in flow rates and patterns in streams, which may affect adjacent and



downstream vegetation communities. Water-quality impacts include erosion, increased turbidity, and excessive sedimentation. Direct impacts can also remove native vegetation and increase runoff from roads and other paved surfaces, resulting in increased erosion and transport of surface matter into vegetation communities. Altered erosion, increased surface flows, and underground seepage can allow for the establishment of non-native plants. Changed hydrologic conditions can also alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

**Increasing Noise and/or Nighttime Lighting.** Noise would not affect vegetation communities. Some localized security-related lighting may be required during operation. Lighting would conform to County of San Diego outdoor lighting requirements, and is not expected to affect adjacent vegetation communities.

**Generation of Fugitive Dust.** The effects of fugitive dust on sensitive vegetation communities would be the same as the temporary indirect impacts described in Section 5.1.1, Direct Impacts to Riparian Habitat or Sensitive Vegetation Communities.

**Habitat Fragmentation.** Habitat fragmentation and isolation of plant populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcove et al. 1986; Wilcox and Murphy 1985). Although these effects are more readily observable in wildlife, there are potential ecological effects, such as changes in pollinator populations, which can result in altered plant community composition and thus adversely affect sensitive vegetation communities. The Boulder Brush Facilities is not anticipated to result in habitat fragmentation for wildlife species that may utilize the Boulder Brush Corridor.

Chemical Pollutants. The effects of chemical pollutants on sensitive vegetation communities would be the same as the temporary indirect impacts described in Section 5.1.1. During operation and maintenance, herbicides may be used to prevent vegetation from reoccurring around structures. However, weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. Additionally, the herbicides used during operation and maintenance activities would be contained within the Boulder Brush Facilities development footprint.

Alteration of the Natural Fire Regime. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and in some cases, result in permanent transition of the vegetation to non-native communities, such as annual grassland and weedy communities (Keeley 1987; Malanson and O'Leary 1982; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural

fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation.

During operation, the high-voltage substation and switchyard will be unmanned. All monitoring and control functions will be performed remotely. Routine O&M will require a single pickup truck visiting the high-voltage substation and switchyard periodically for inspections, as well as maintenance/repair trucks visiting the substation several times a year for equipment maintenance. Maintenance activities will include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity. Regular inspection of fuel modification zones around the perimeter of the high-voltage substation and switchyard will be conducted. One 30,000-gallon water tank is proposed for the substation. This on-site fire prevention infrastructure would provide immediate resources for firefighting.

The significance of these potential impacts was determined through application of the County's Significance Guidelines, described in Section 7.1 of this report.

### 5.1.2 Campo Wind Facilities

### 5.1.2.1 Direct Impacts to Riparian Habitat or Sensitive Vegetation Communities

### **Temporary Direct Impacts**

For purposes of this analysis, all impacts associated with the Campo Wind Facilities are considered permanent direct impacts.

### Permanent Direct Impacts

**Impact V-5:** Permanent Direct Impacts to Sensitive Vegetation Communities within the Campo Corridor

There are direct impacts to vegetation communities and land covers as a result of the result of grading for the installation of turbines, access roads, the collector substation, O&M facility, and other associated Campo Wind Facilities components. Table 5-2 quantifies the impacts to the vegetation communities and land covers. Figure 5-2 series show these impacts.

Table 5-2
Impacts to Vegetation Communities and Land Cover Types – Campo Corridor

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/Oberbauer Code)	Total (Acres)
Bog and Marsh (50000)	Emergent wetland	0.32
	Bog and Marsh (50000) Total	0.32
Disturbed and Developed Areas (10000)	Developed	3.56
	Disturbed habitat	45.24
	Disturbed and Developed Areas (10000) Total	48.80
Grasslands, Vernal Pools, Meadows, and other	Non-native grassland	21.23
Herb Communities (40000)	Non-native grassland broadleaf-dominated	0.20
	Valley Sacaton grassland	0.22
Grasslands, Vernal Pools	, Meadows, and other Herb Communities (40000) Total	21.65
Riparian and Bottomland Habitat (60000)	Mulefat scrub	0.05
	Southern coast live oak riparian forest	0.85
	Southern willow scrub	0.18
	Riparian and Bottomland Habitat (60000) Total	1.08
Scrub and Chaparral (30000)	Big sagebrush scrub	30.42
	Granitic chamise chaparral	458.44
	Granitic northern mixed chaparral	92.97
	Montane buckwheat scrub	47.19
	Red shank chaparral	39.51
	Scrub oak chaparral	15.48
	Upper Sonoran subshrub scrub	10.59
	Scrub and Chaparral (30000) Total	694.59
Woodland (70000)	Coast live oak woodland	18.79
	Dense Coast live oak woodland	1.35
	Open Coast live oak woodland	1.41
	Woodland (70000) Total	21.55
Waters of the United States	Unvegetated Stream Channel	1.25
	Waters of the United States Subtotal	1.25
	Total	789.25

# 5.1.2.2 Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities

### **Temporary Indirect Impacts**

**Impact V-6:** Temporary Indirect Impacts to Sensitive Vegetation Communities within the Campo Corridor



Temporary (construction-related) indirect impacts from grading and other construction activities to vegetation communities outside of the limits of grading for Campo Wind Facilities are similar to those described above for Boulder Brush Facilities and include impacts related to or resulting from increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, the introduction of chemical pollutants (including herbicides), and alteration of the natural fire regime. The standard best management practices (BMPs) described in Table 5-3 minimize some of these potential impacts, such as keeping equipment free of leaks, using trash abatement to reduce attraction of predators, minimizing wildfires from construction-related activities, avoiding working in heavy rains, and establishing speed limits to reduce dust from equipment and vehicles.

Table 5-3
Standard Best Management Practices

Project Action	General Description
Equipment Maintenance	All equipment operating on site would be in good working condition and free of leaks.
Trash Abatement	Spoils, trash, or any construction-generated debris would be removed to an approved off-site disposal facility. A trash abatement program would be established. Trash and food items would be contained in closed containers and removed daily to reduce the attraction of opportunistic predators such as common ravens, and feral cats and dogs that may prey on sensitive species.
Wildfire Prevention	Wildfires would be prevented by exercising care when driving and by not parking vehicles where catalytic converters could ignite dry vegetation. All construction vehicles would carry water and shovels or fire extinguishers in the field, or high fire risk installations (e.g., electric lines) may need to be delayed. The use of shields, protective mats, or other fire-prevention equipment would be used during grinding and welding to prevent or minimize the potential for fire.
Erosion, Runoff, and Sedimentation Prevention	All construction activities would cease during heavy rains (i.e., rainfall over 0.2 inches) to prevent unnecessary erosion, runoff, and sedimentation and would not resume until conditions are suitable for the movement of equipment and materials.
Toxic Substances	Vehicles would carry a Hazardous Material Spill Kit for use in the event of a spill. All personnel working on site would be trained in using these kits. Spill containment materials must be on site or readily available for any equipment maintenance or refueling.
Pets and Firearms	Workers would be prohibited from bringing domestic pets and firearms to the site.
Speed Limit	Vehicle speeds on site would be restricted to 15 miles per hour (24 kilometers per hour) during all phases of the project. Speed limit signs would be posted throughout the site to remind personnel of travel speed restrictions.
Work Hours	Construction should occur during the daytime only, and no construction should take place at night.1 "Nighttime" is defined as between 7:00 p.m. and 7:00 a.m.
Lighting	Construction activities should not include nighttime lighting. Temporary security lighting around staging areas may be required for safety during construction activities up until 7:00 p.m.

#### Note:

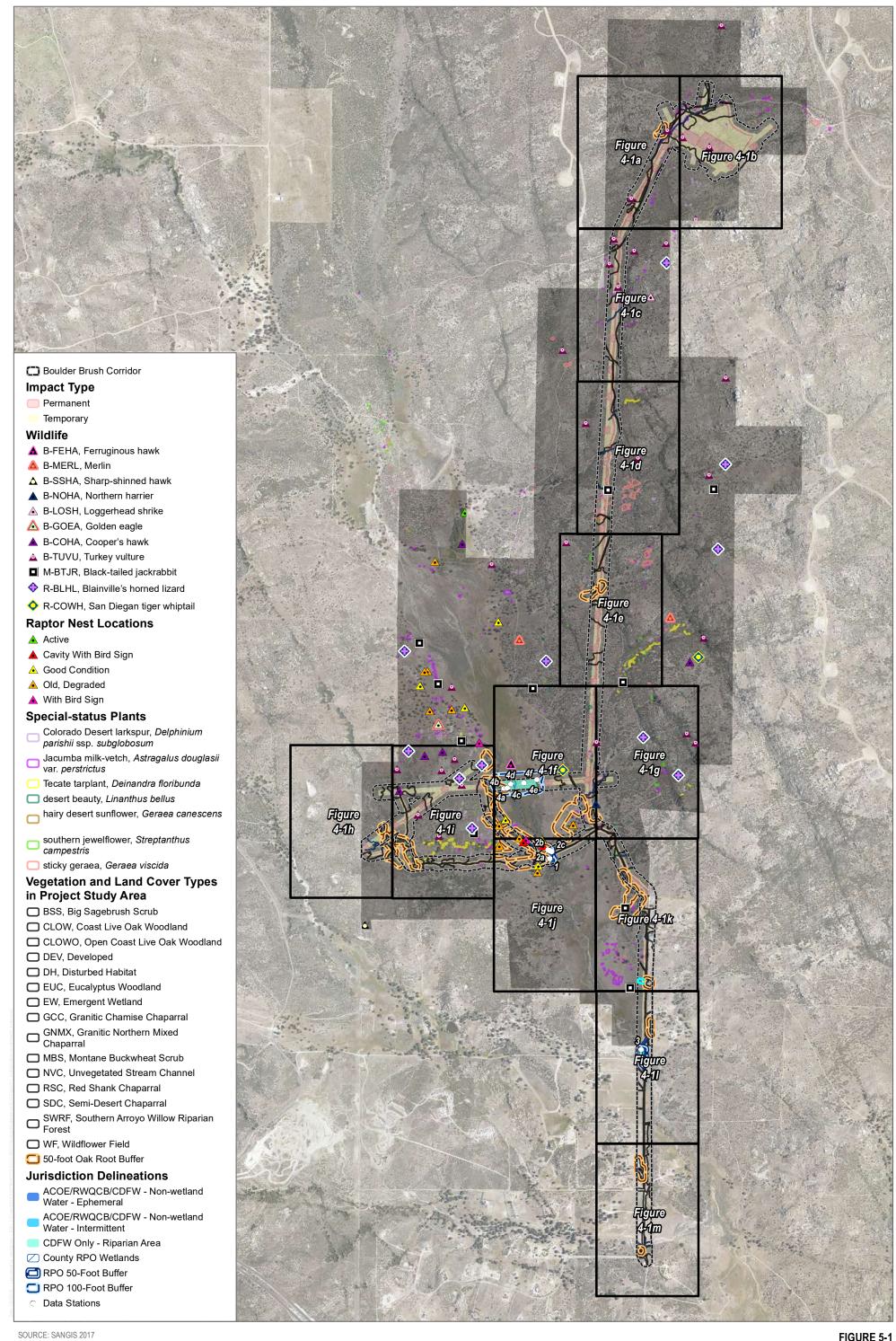
<sup>1</sup> No construction activities will occur at night; however, due to Caltrans restriction on oversize loads during peak traffic hours, some equipment deliveries may occur after hours.

### **Permanent Indirect Impacts**

**Impact V-7:** Permanent Indirect Impacts to Sensitive Vegetation Communities within the Campo Corridor

Permanent (operation-related) indirect impacts for Campo Wind Facilities are similar to those described above for Boulder Brush Facilities and could result from the proximity of the project to vegetation communities after construction, including impacts related to O&M. O&M activities would occur within the limits of grading; indirect impacts to vegetation communities could occur from increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, chemical pollutants if used for operation-related activities, and alteration of the natural fire regime. The standard BMPs described in Table 5-3, above, minimize some of these potential impacts, such as speed limits to reduce dust from vehicles and trash abatement to reduce attraction of predators.

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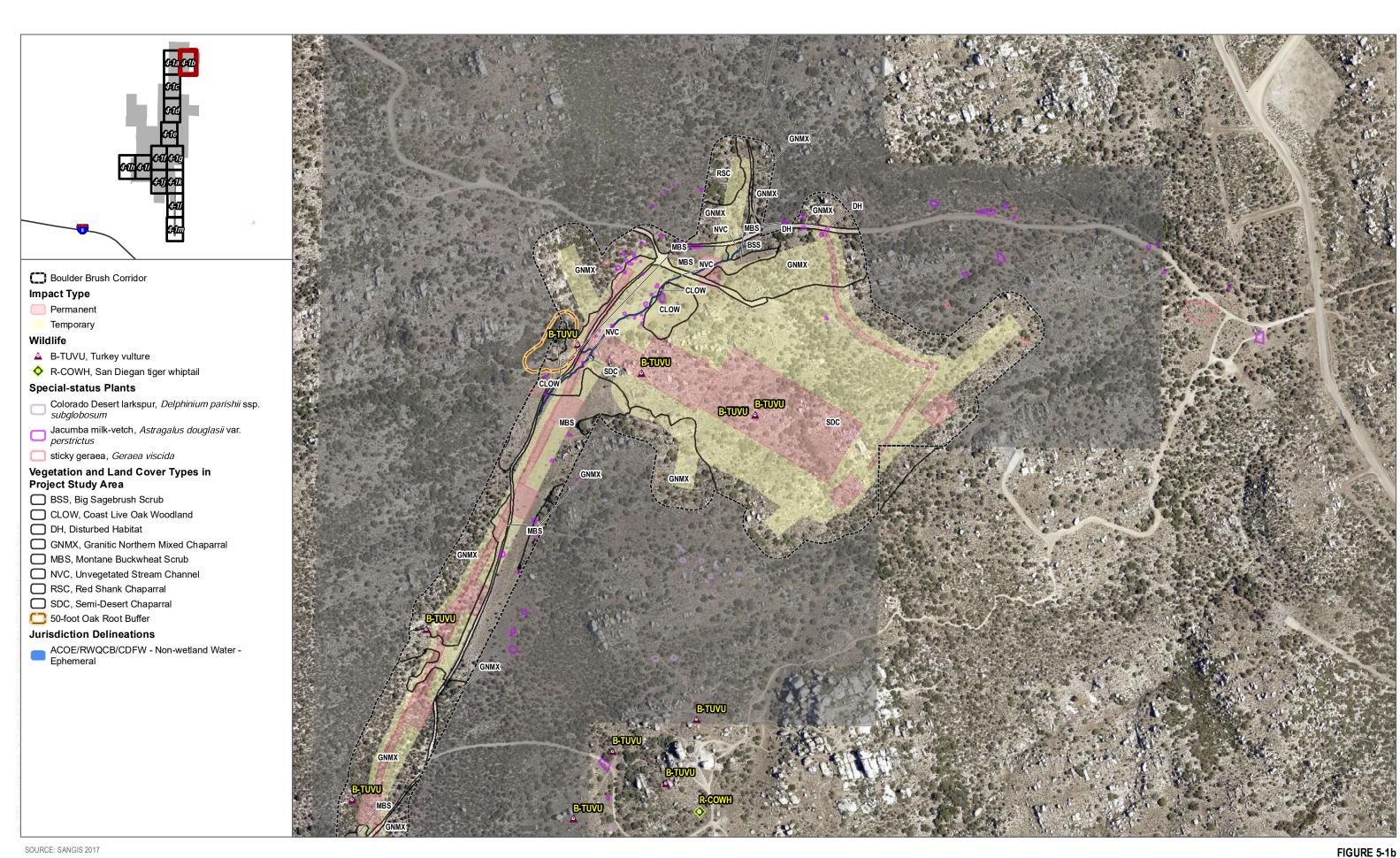


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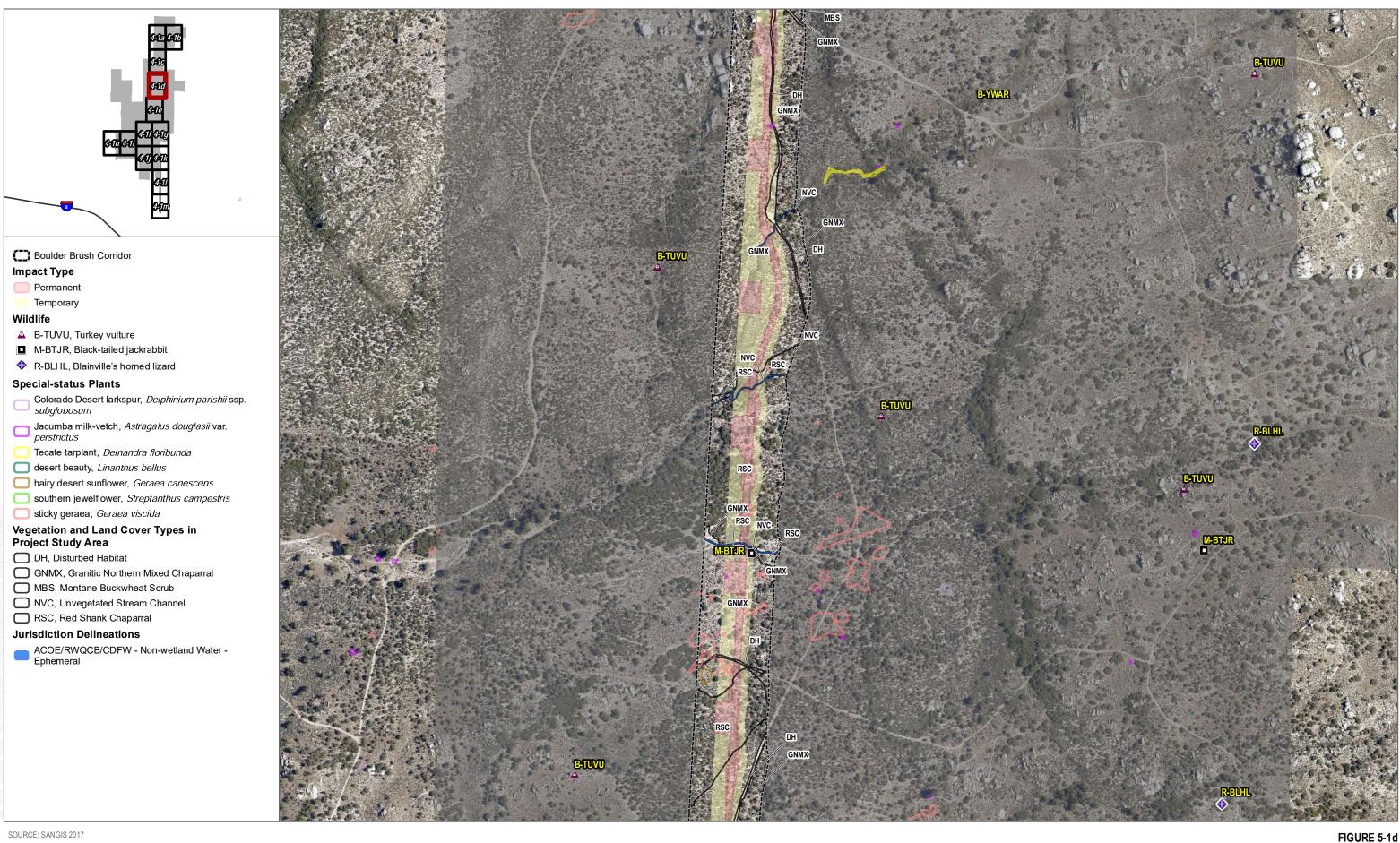


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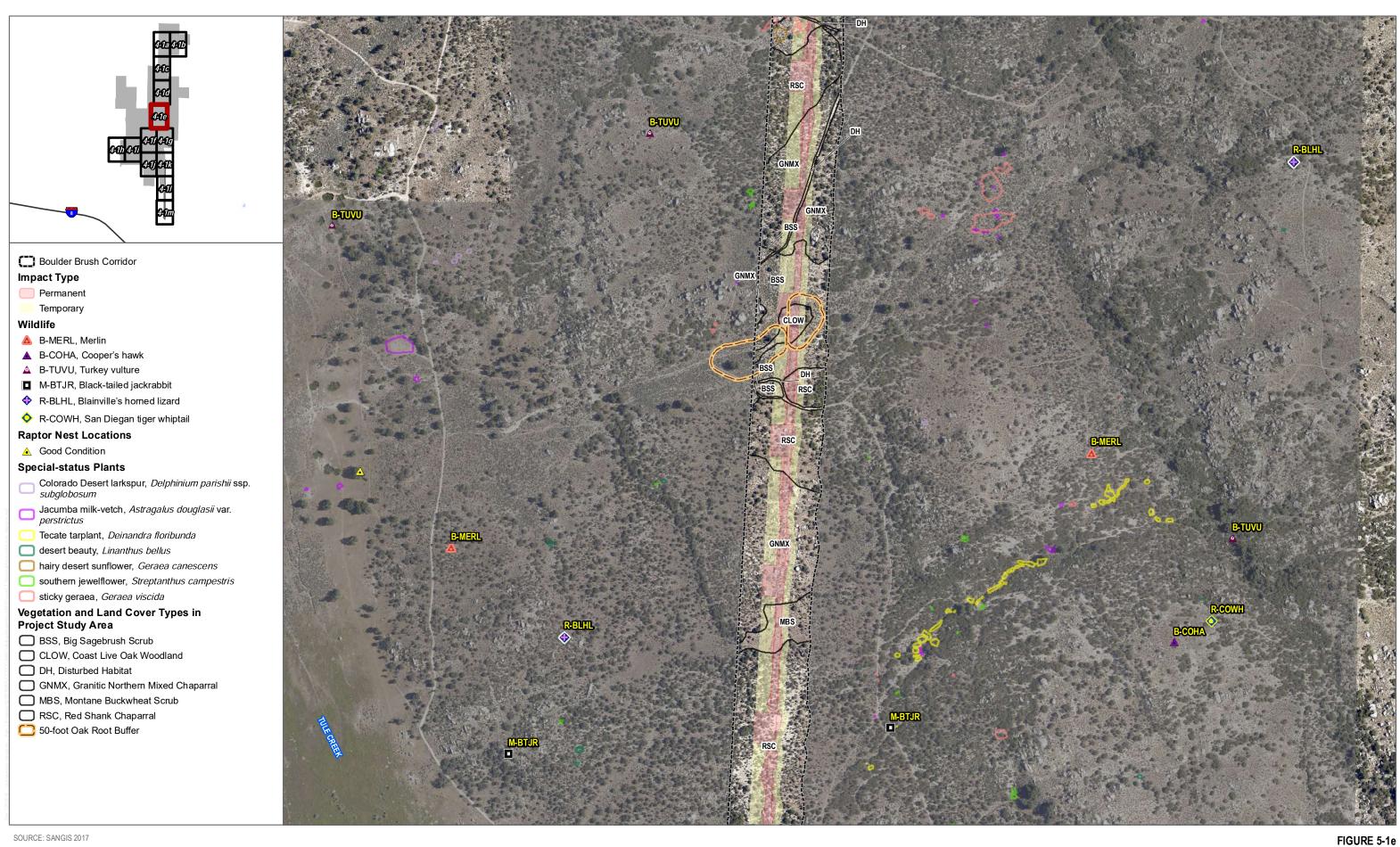


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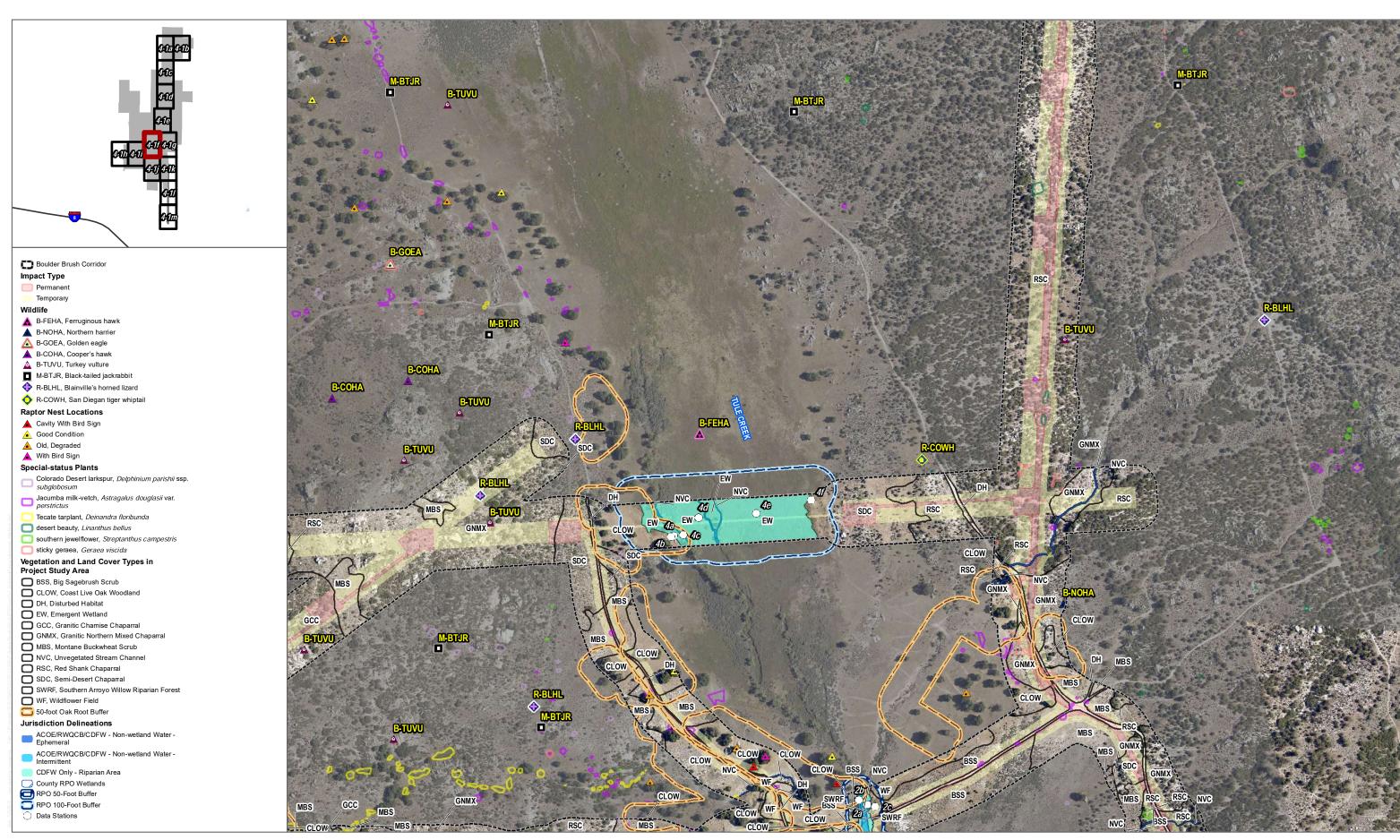
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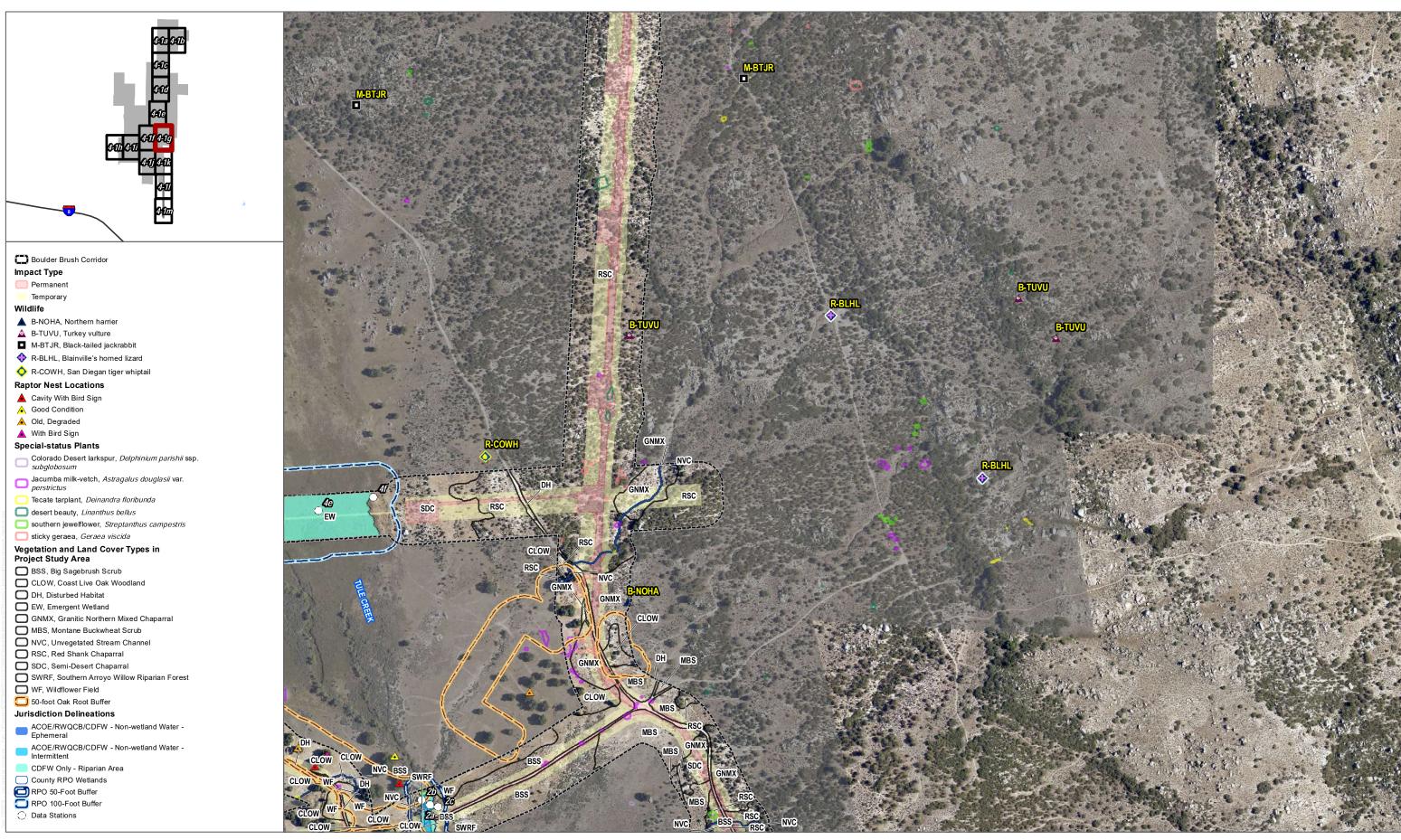


FIGURE 5-1g

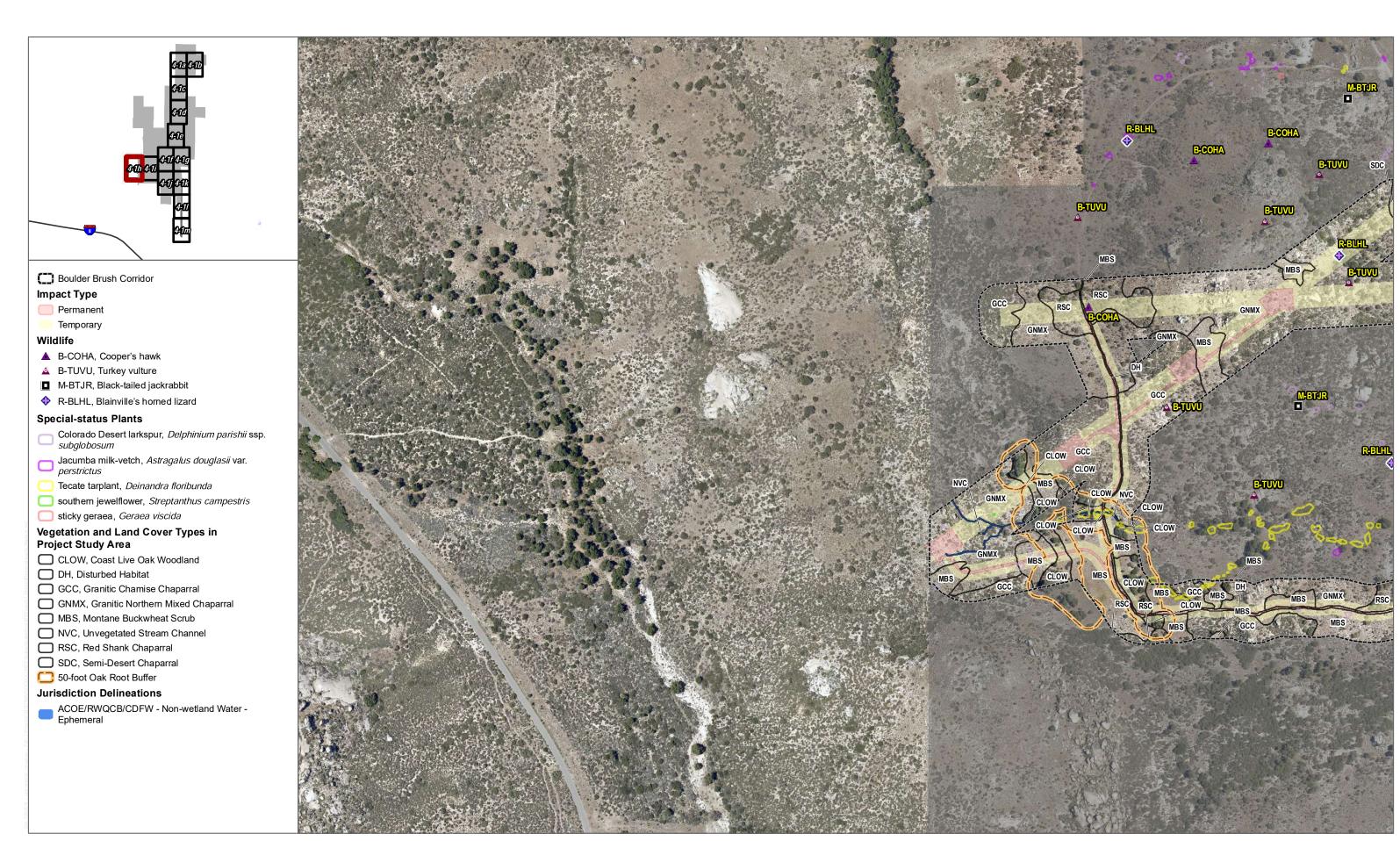
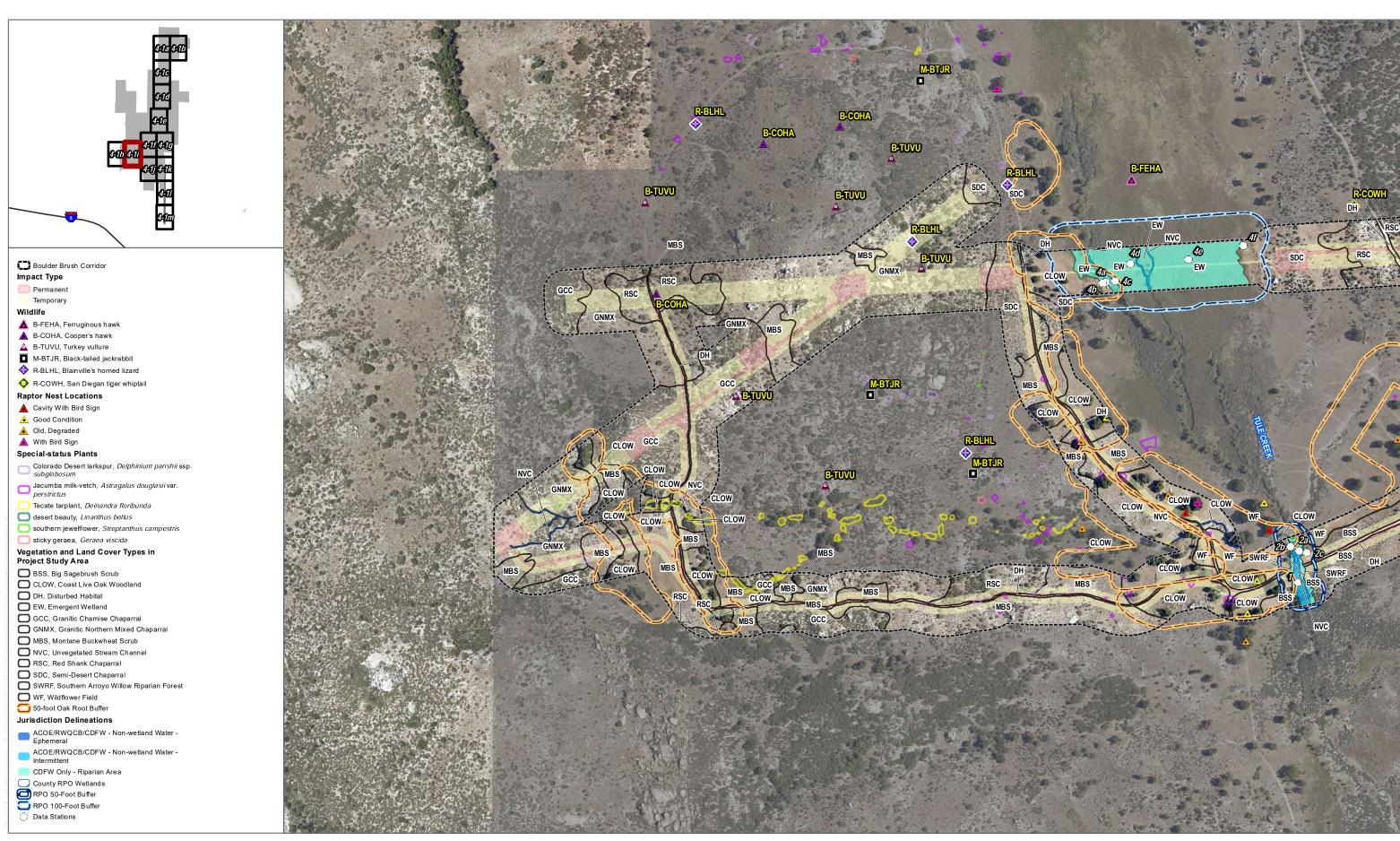
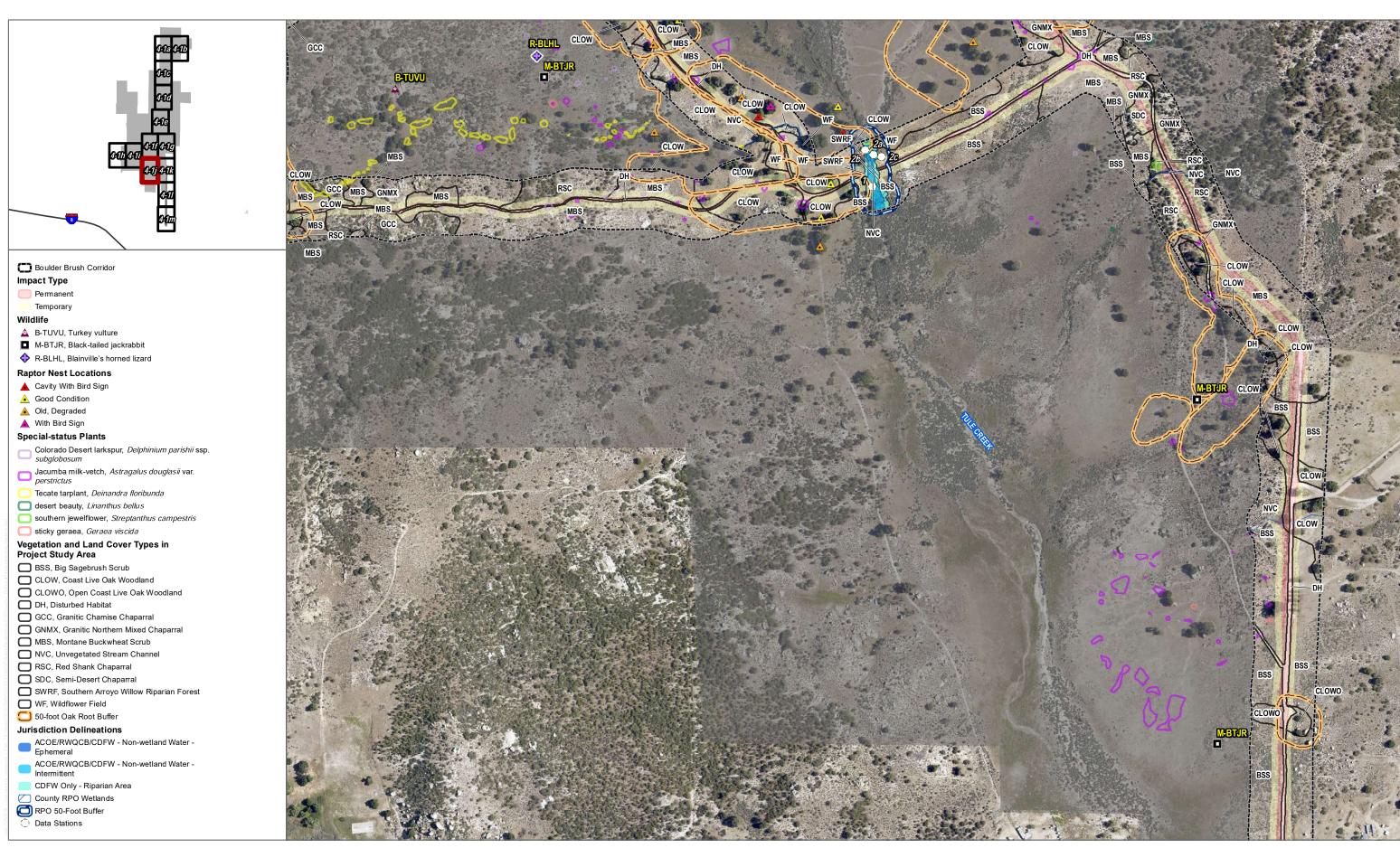


FIGURE 5-1h



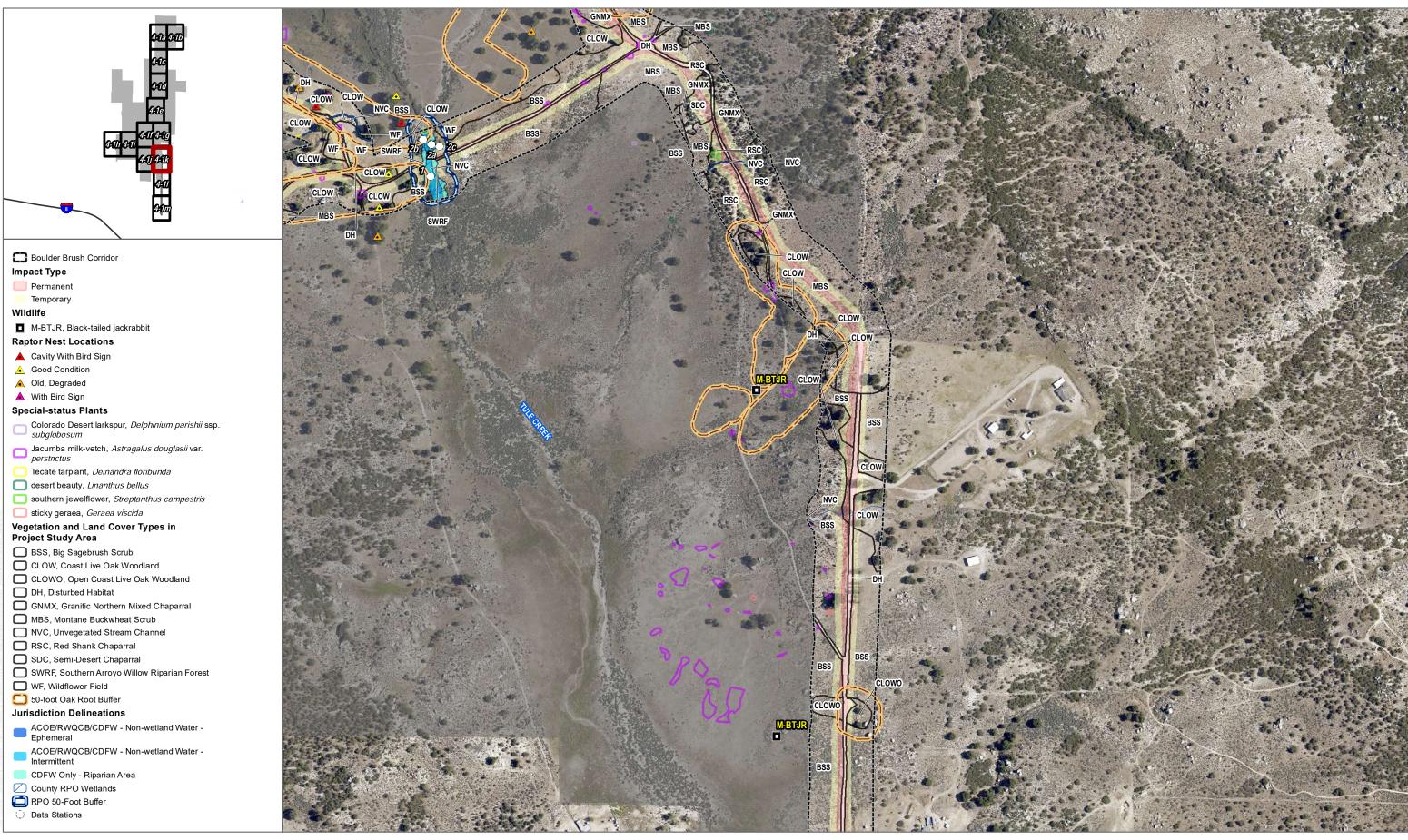
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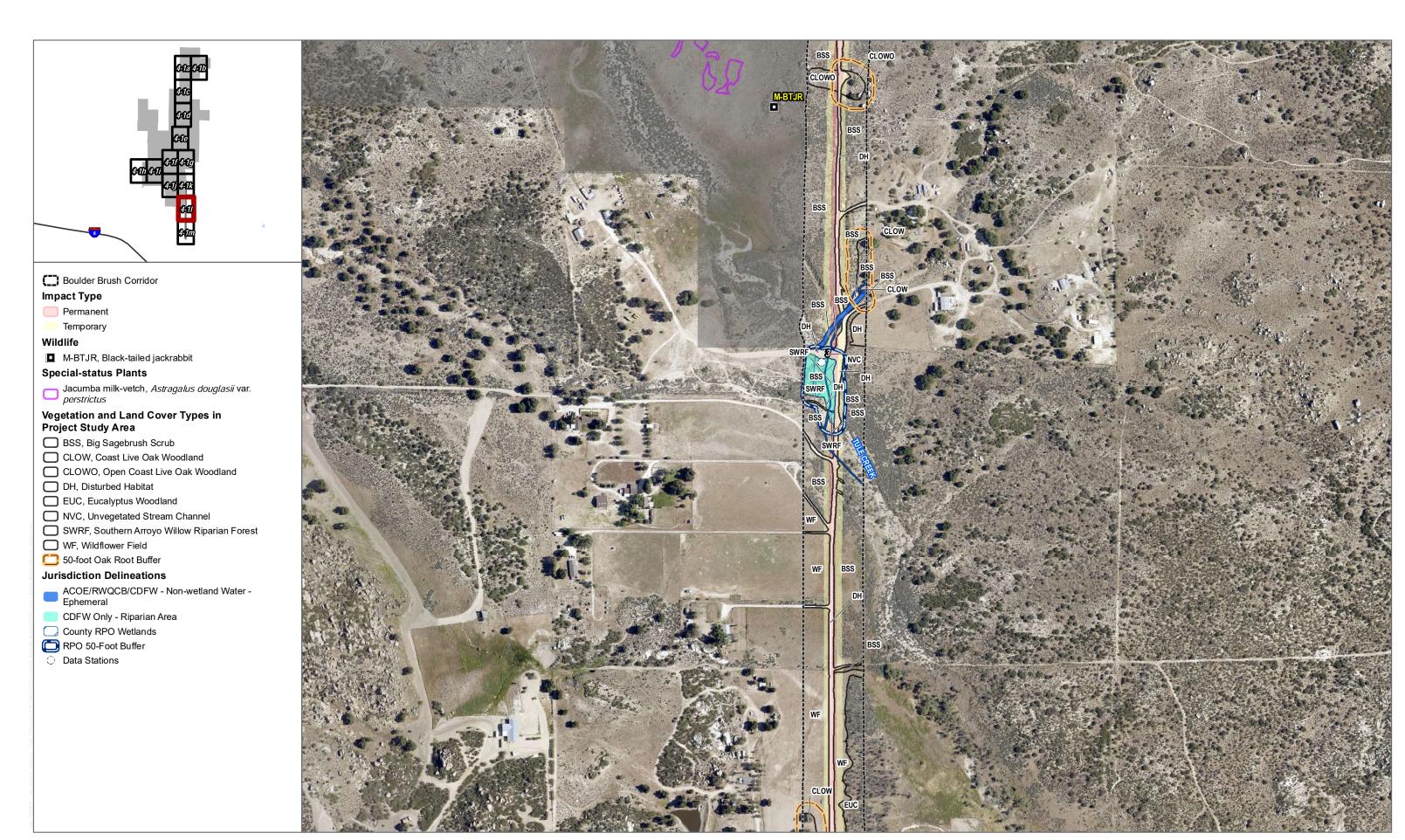
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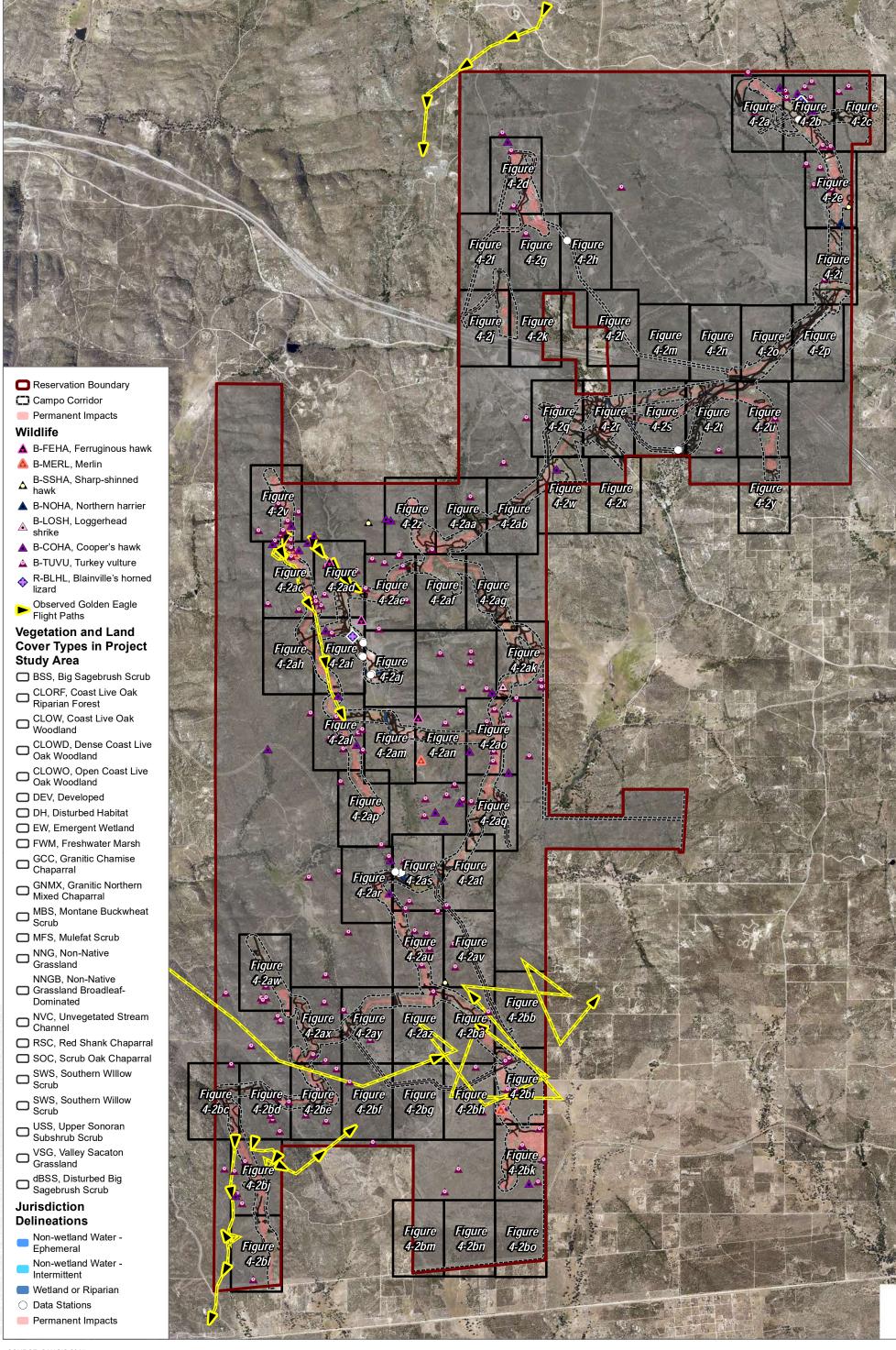
FIGURE 5-1j



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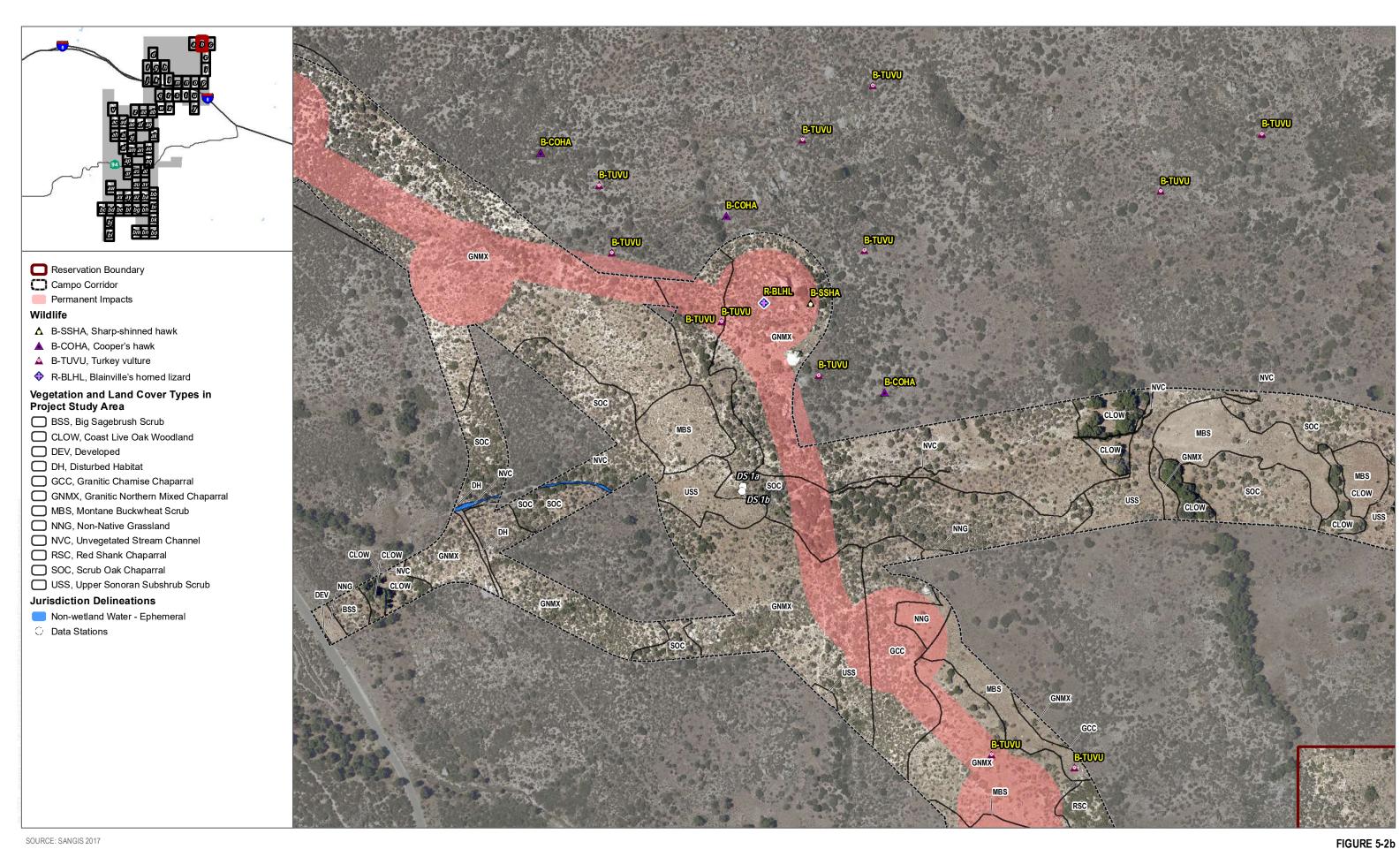




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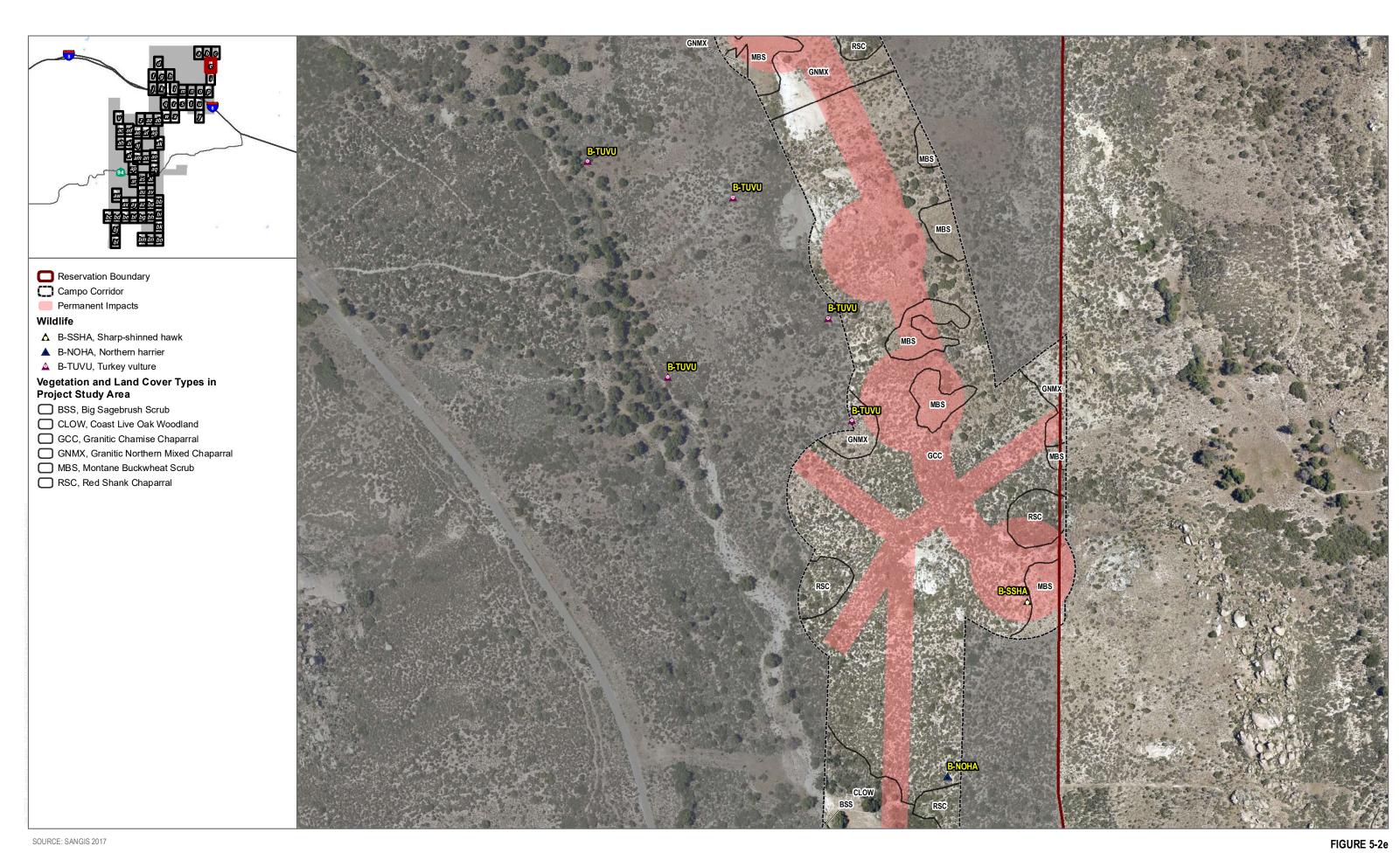




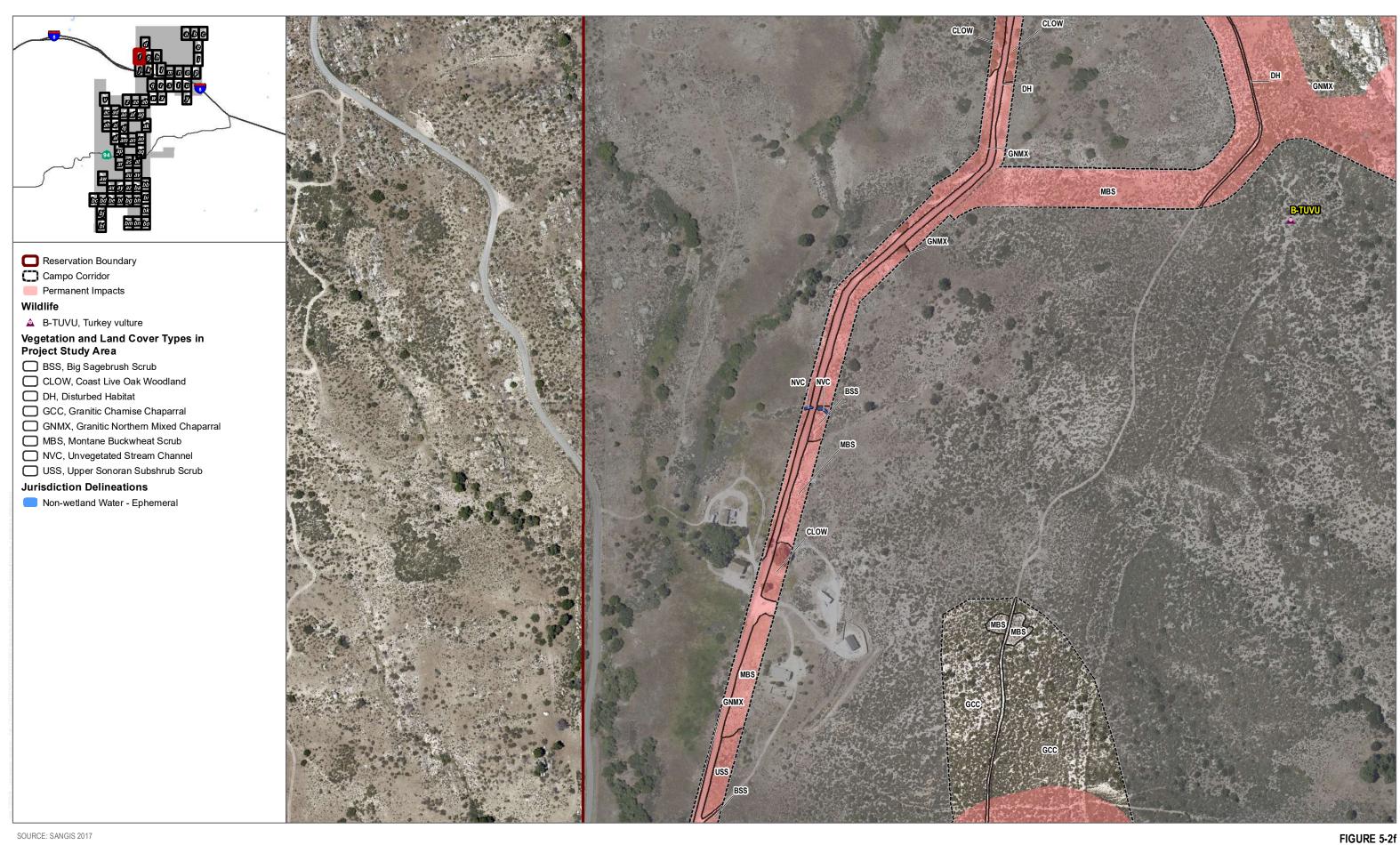


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FIGURE 5-2d

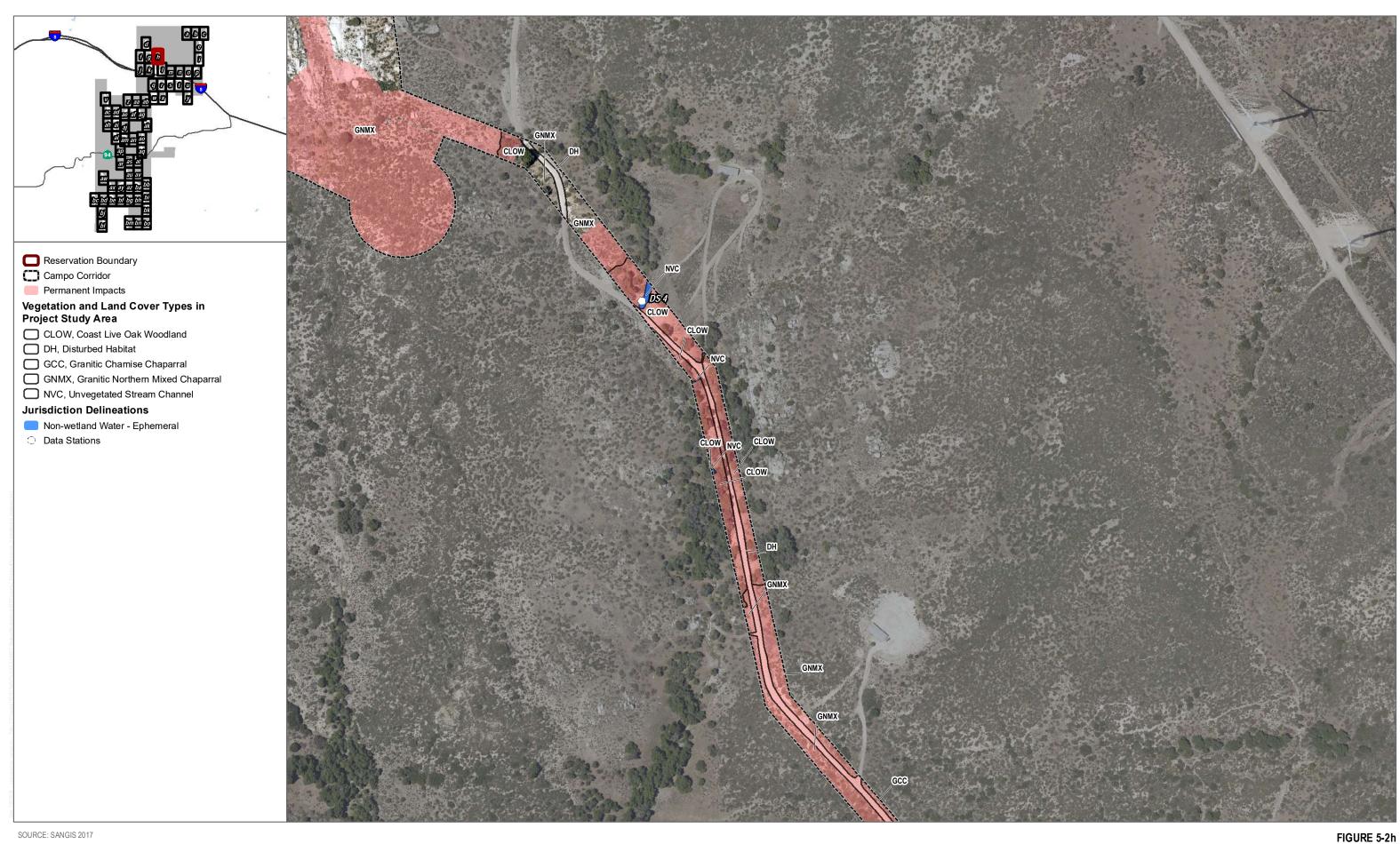


**DUDEK 6** 0 162.5 325 Feet











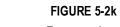




SOURCE: SANGIS 2017



SOURCE: SANGIS 2017





SOURCE: SANGIS 2017





**DUDEK 6** 0 162.5 325 Feet

Impacts to Biological Resources - Reservation



SOURCE: SANGIS 2017

**DUDEK 6** 0 162.5 325 Feet

Impacts to Biological Resources - Reservation





**DUDEK 6** 0 162.5 325 Feet

FIGURE 5-2p



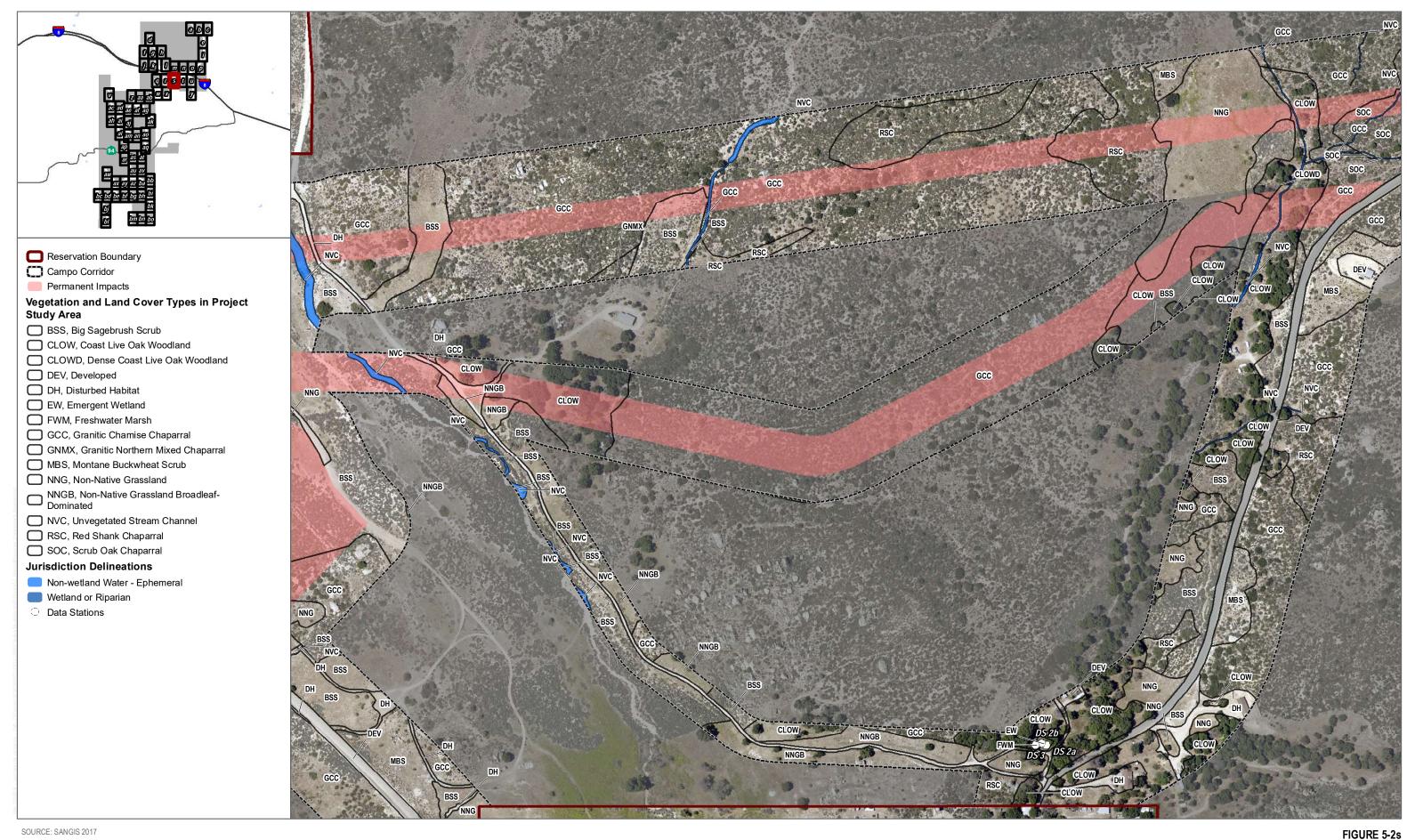
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Impacts to Biological Resources - Reservation



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SOURCE: SANGIS 2017





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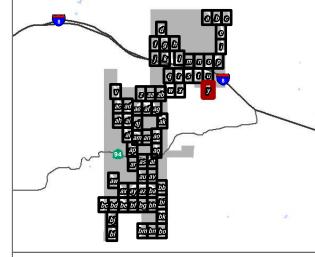




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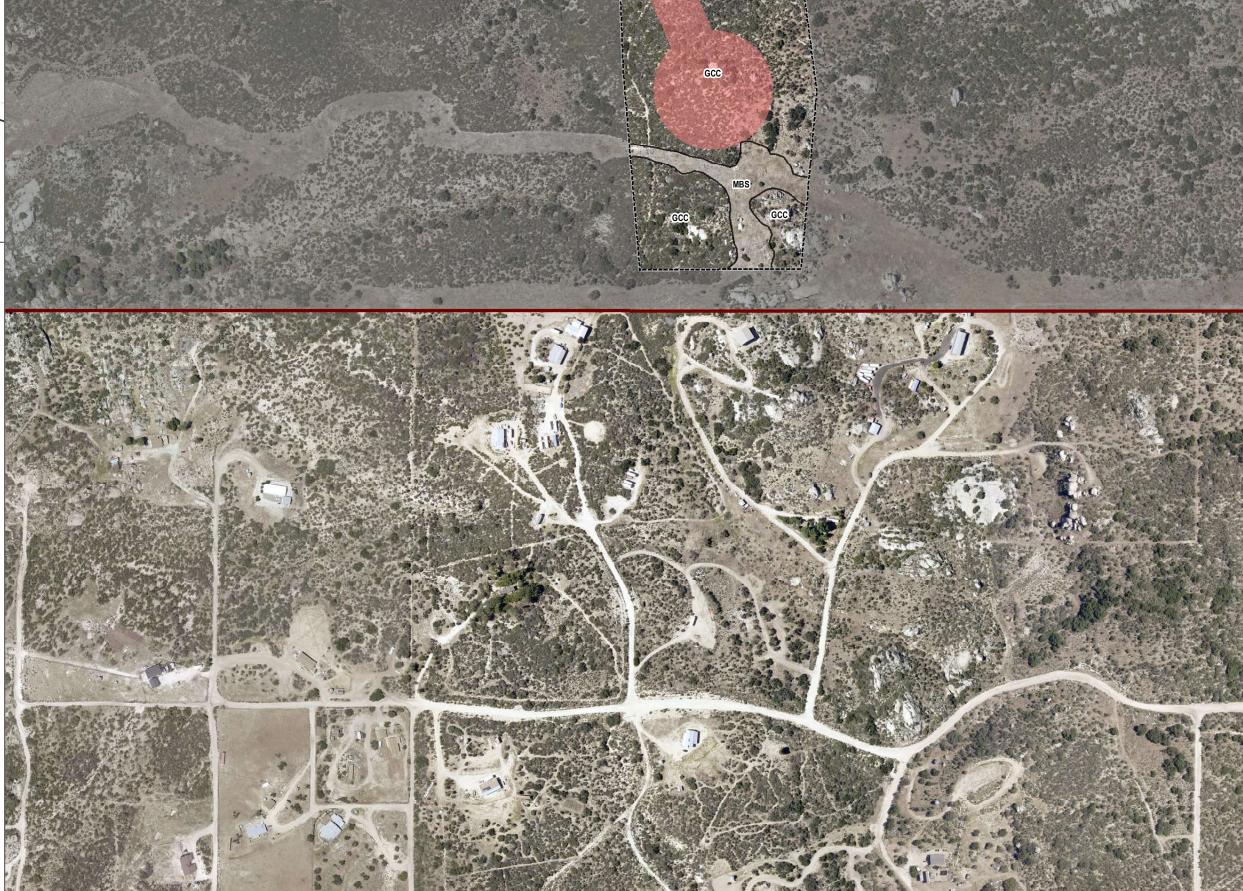
Reservation Boundary
Campo Corridor

Permanent Impacts

# Vegetation and Land Cover Types in Project Study Area

GCC, Granitic Chamise Chaparral

MBS, Montane Buckwheat Scrub



SOURCE: SANGIS 2017









**DUDEK 6** 0 162.5 325 Feet

FIGURE 5-2aa



**DUDEK 6** 0 162.5 325 Feet



**DUDEK 6** 0 162.5 325 Feet





**DUDEK 6** 0 162.5 325 Feet



Impacts to Biological Resources - Reservation





**DUDEK 6** 0 162.5 325 Feet

Impacts to Biological Resources - Reservation

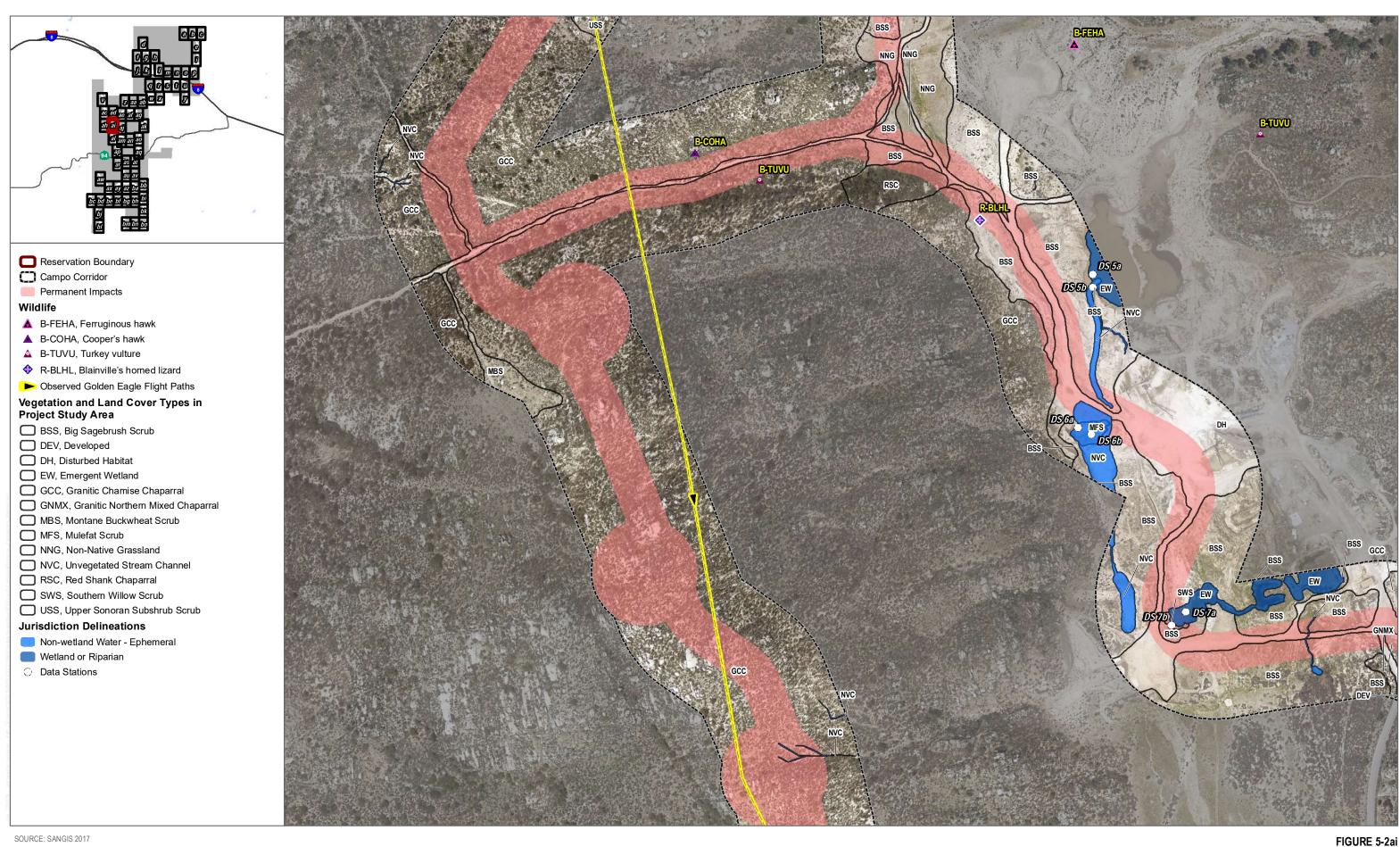
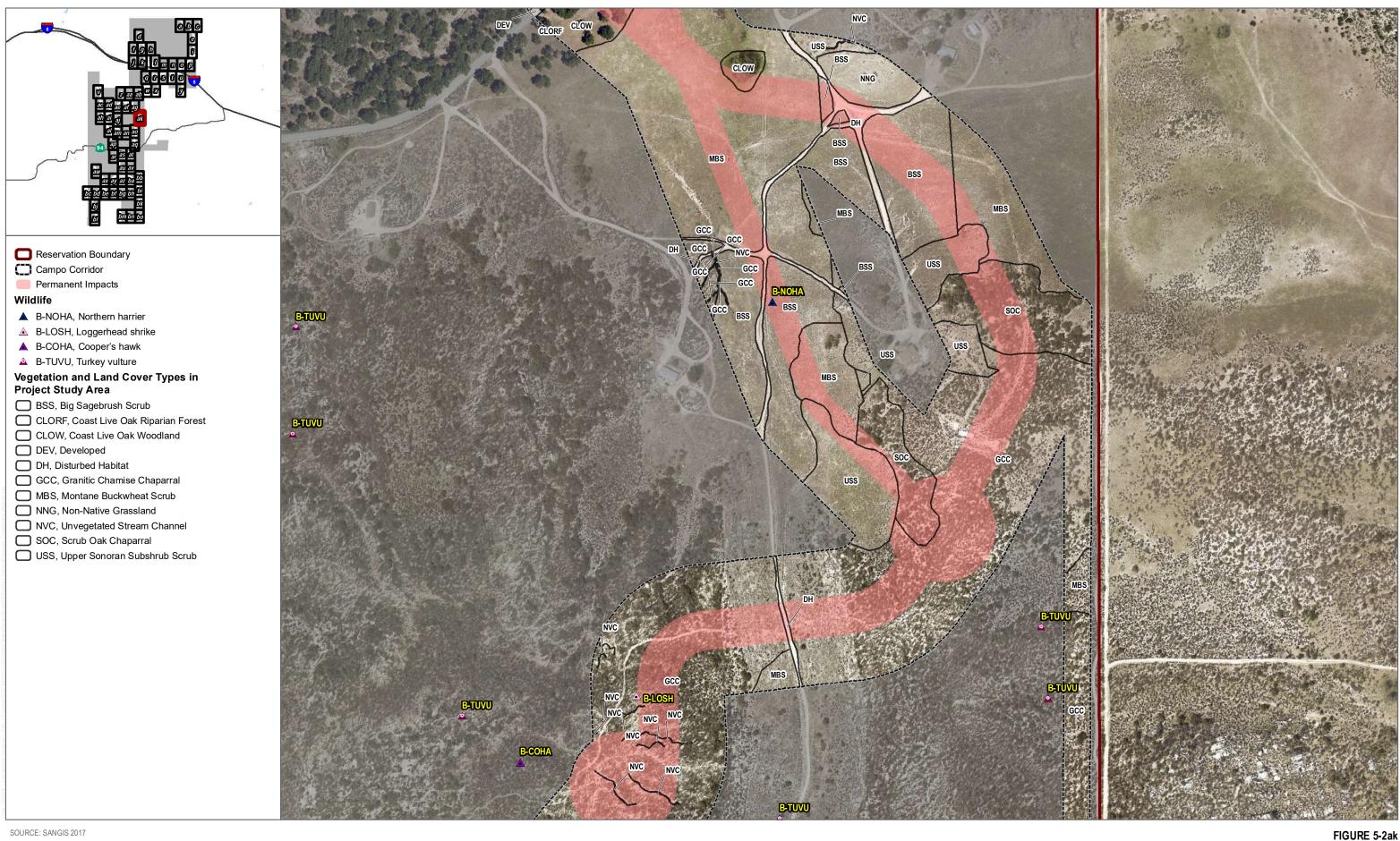






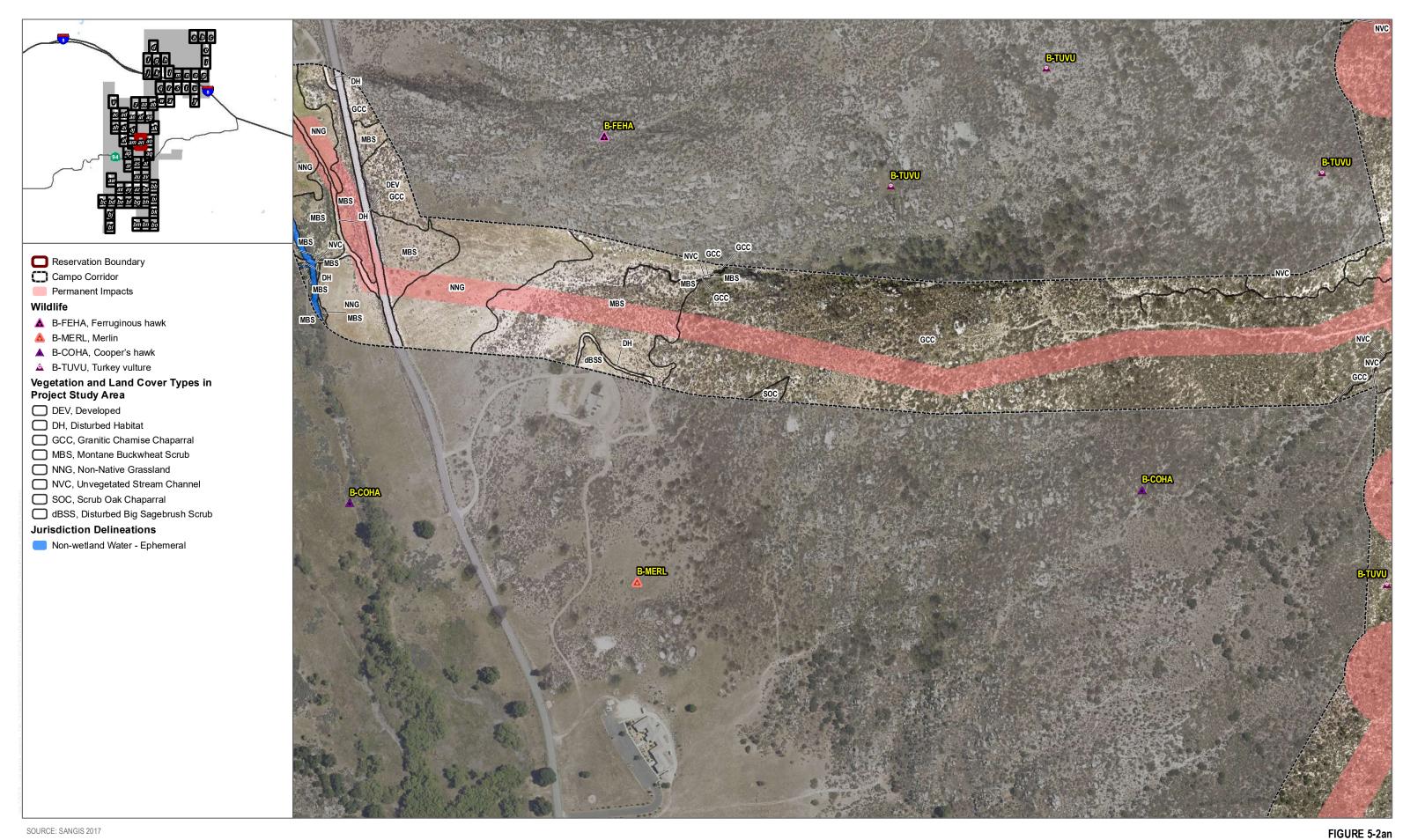
FIGURE 5-2aj





Impacts to Biological Resources - Reservation

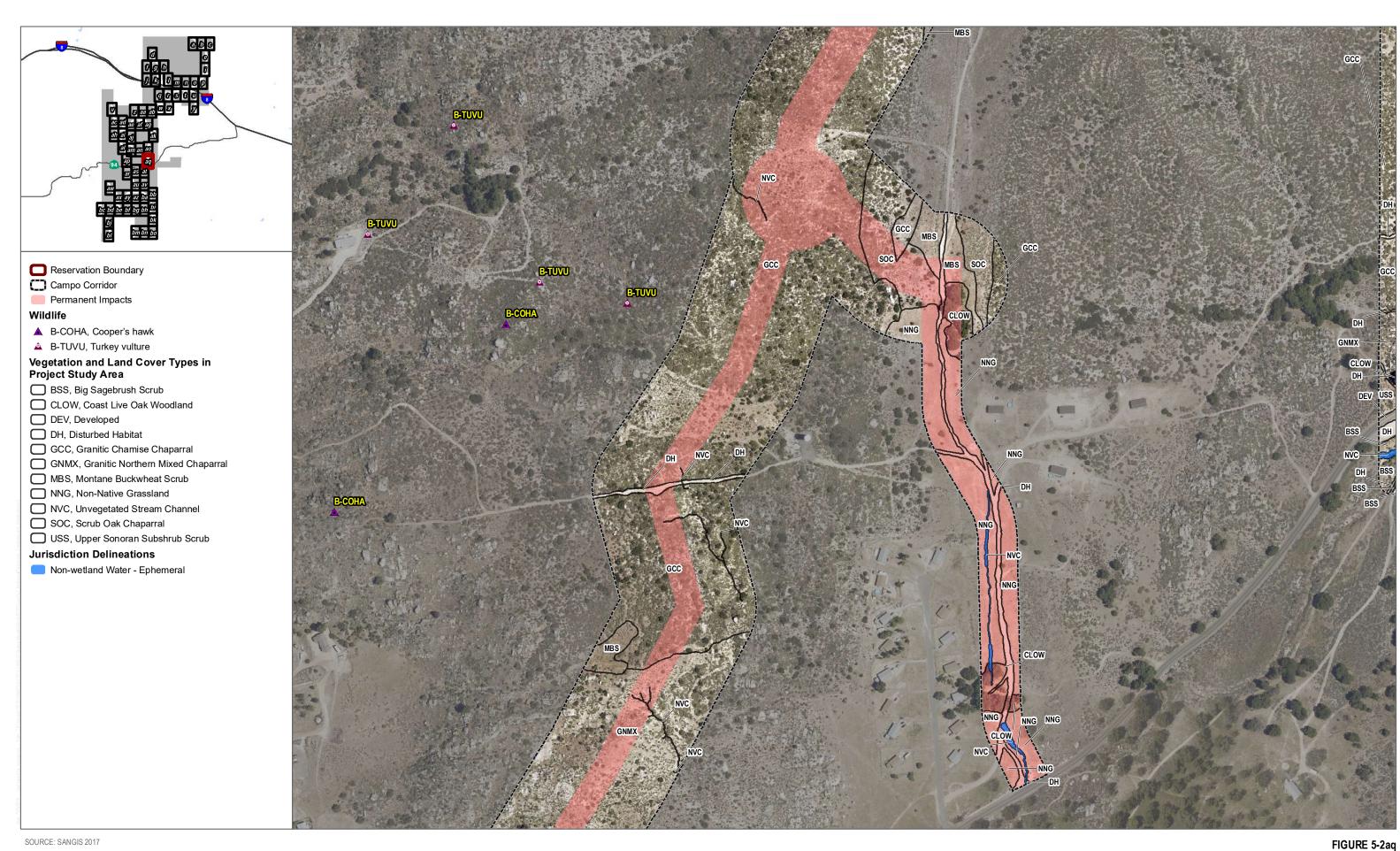


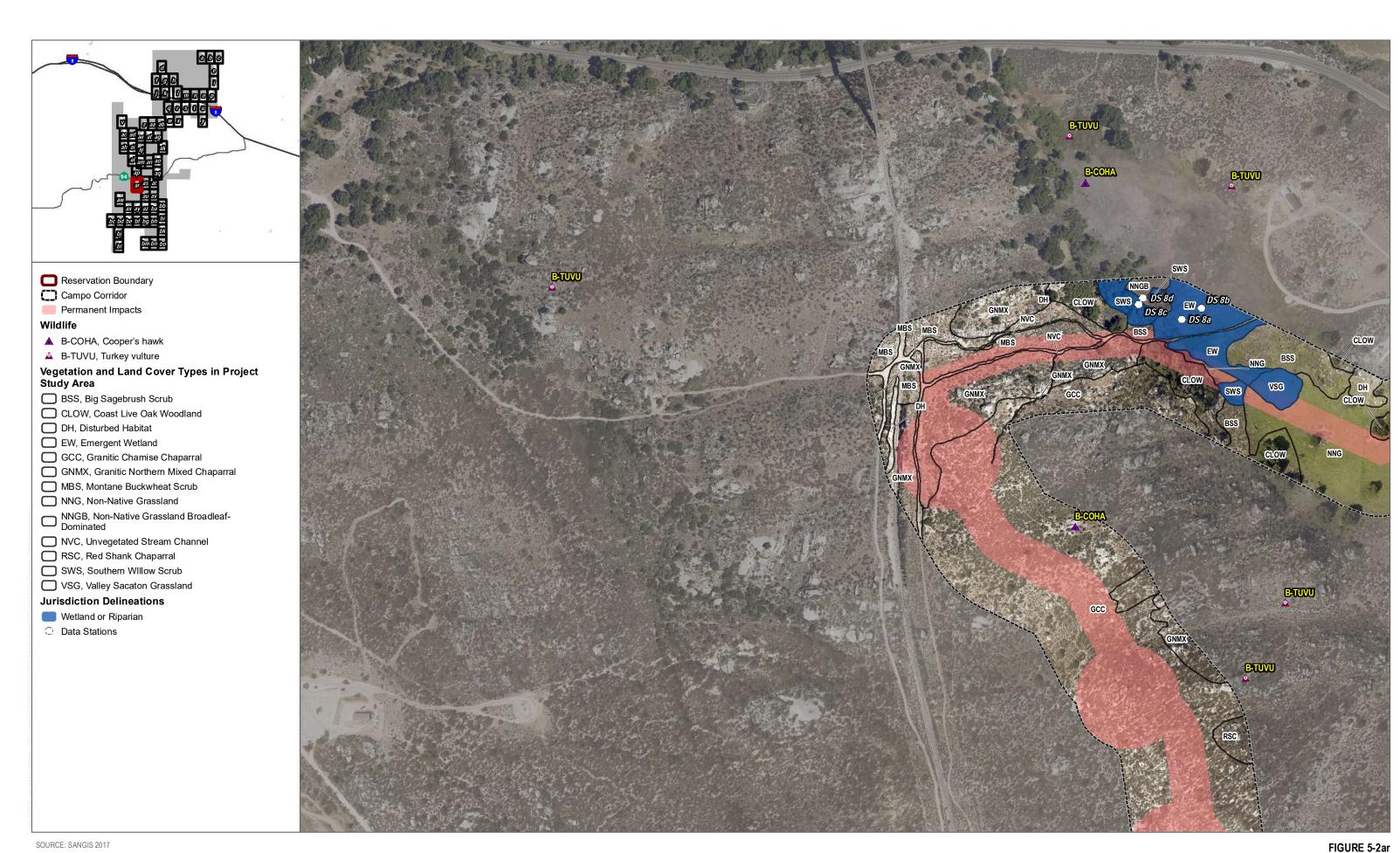














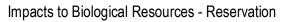




SOURCE: SANGIS 2017

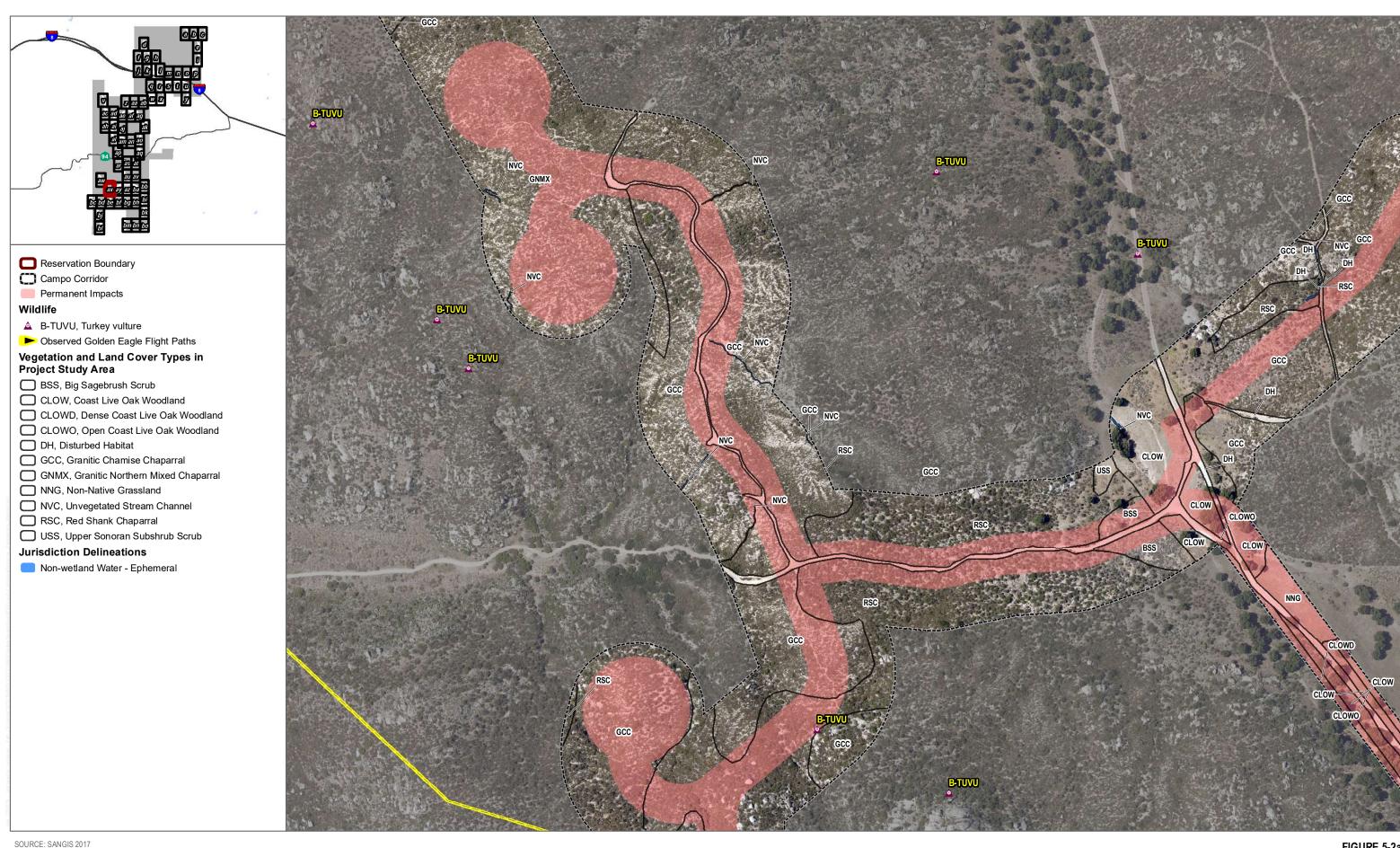


SOURCE: SANGIS 2017



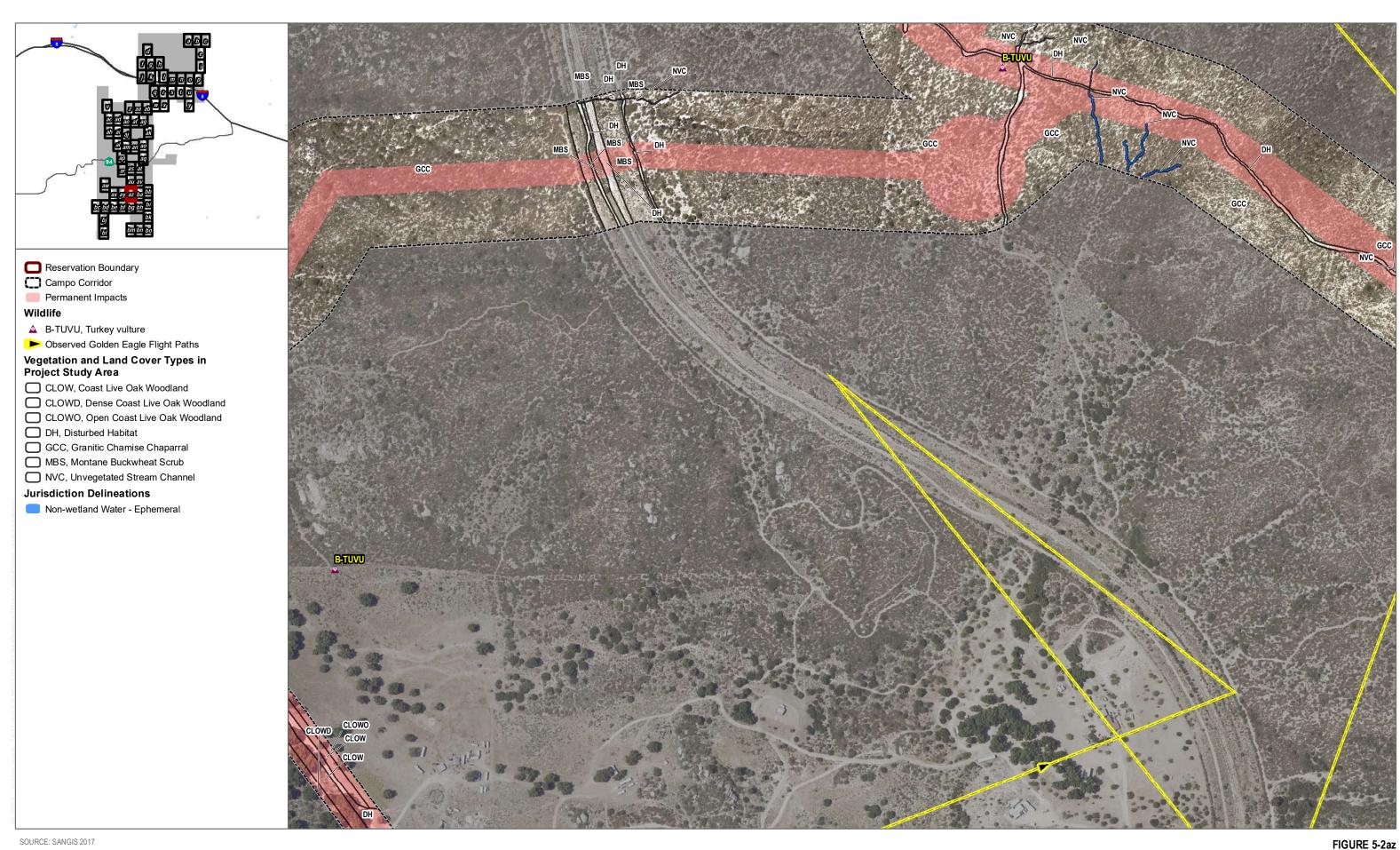












SOURCE: SANGIS 2017

**DUDEK 6** 0 162.5 325 Feet

Impacts to Biological Resources - Reservation

INTENTIONALLY LEFT BLANK

**DUDEK** 

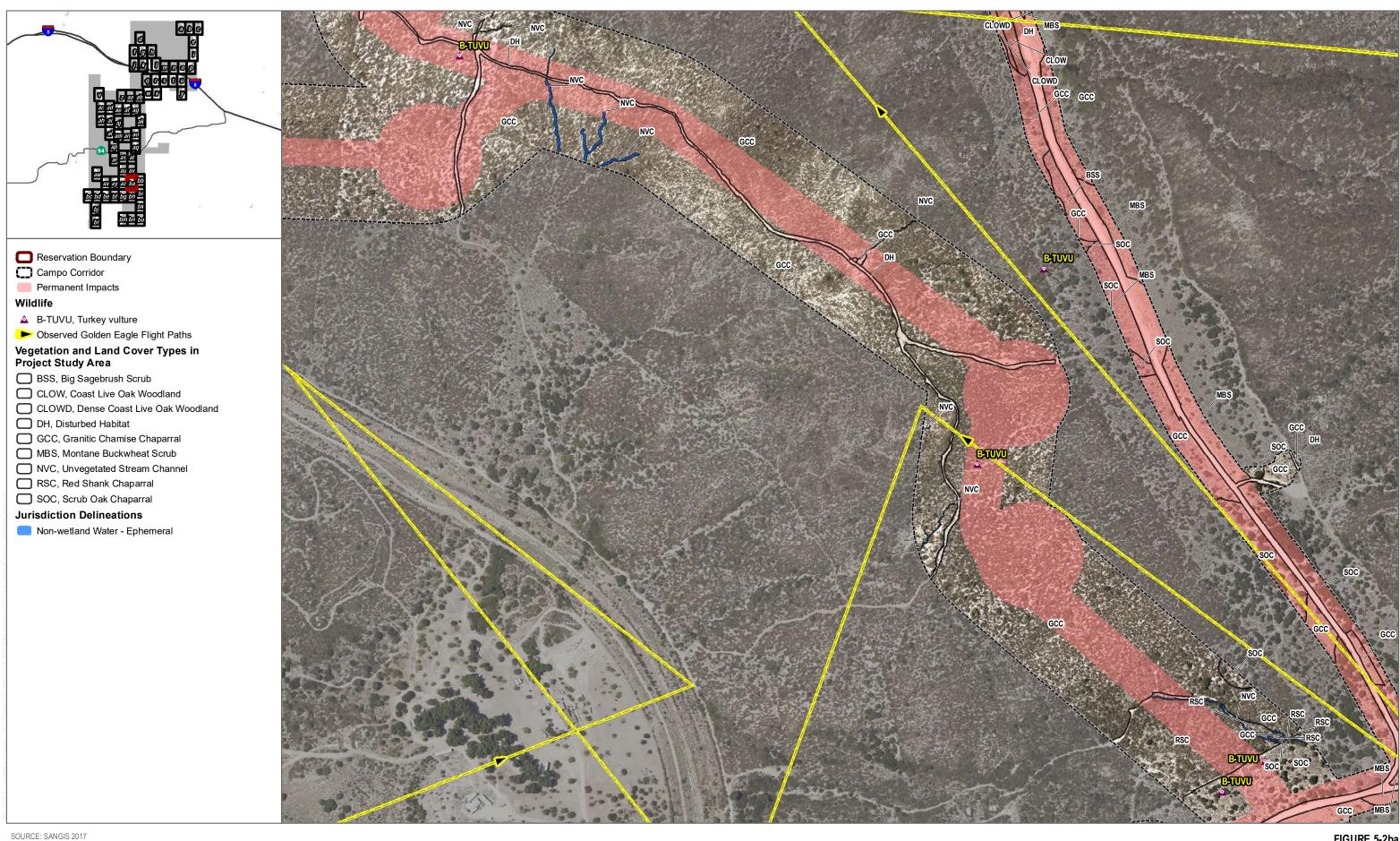


FIGURE 5-2ba



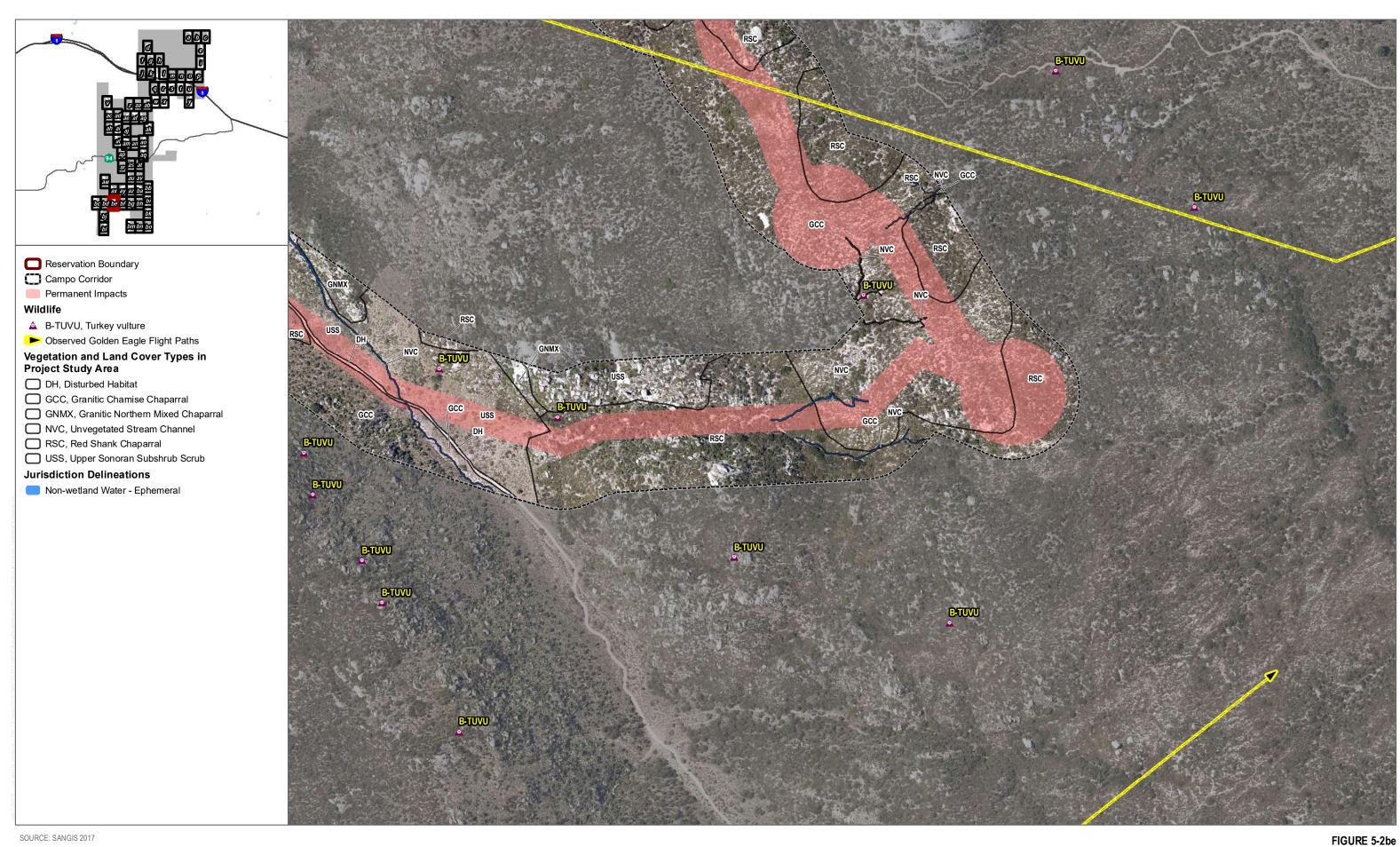


FIGURE 5-200







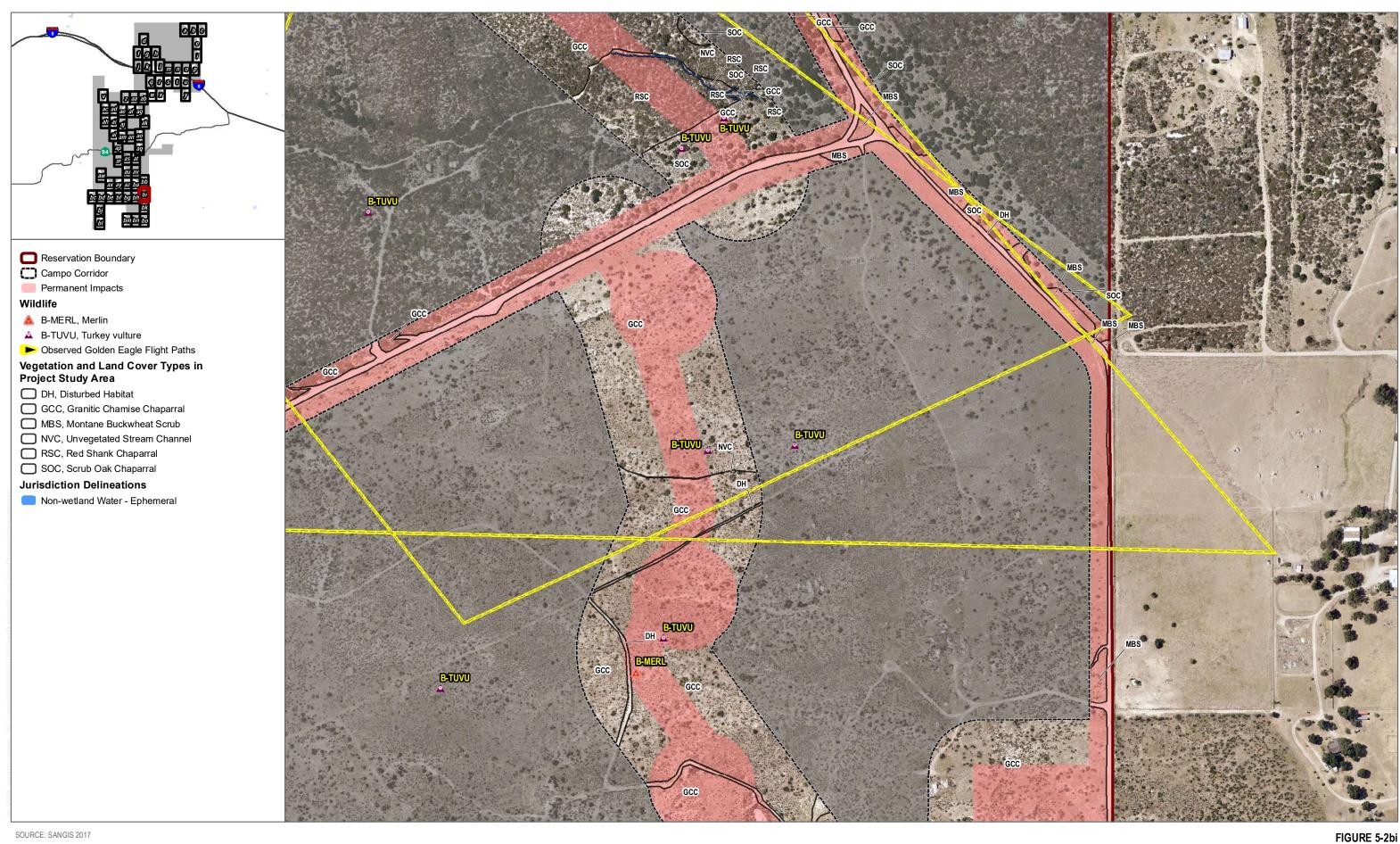




Impacts to Biological Resources - Reservation



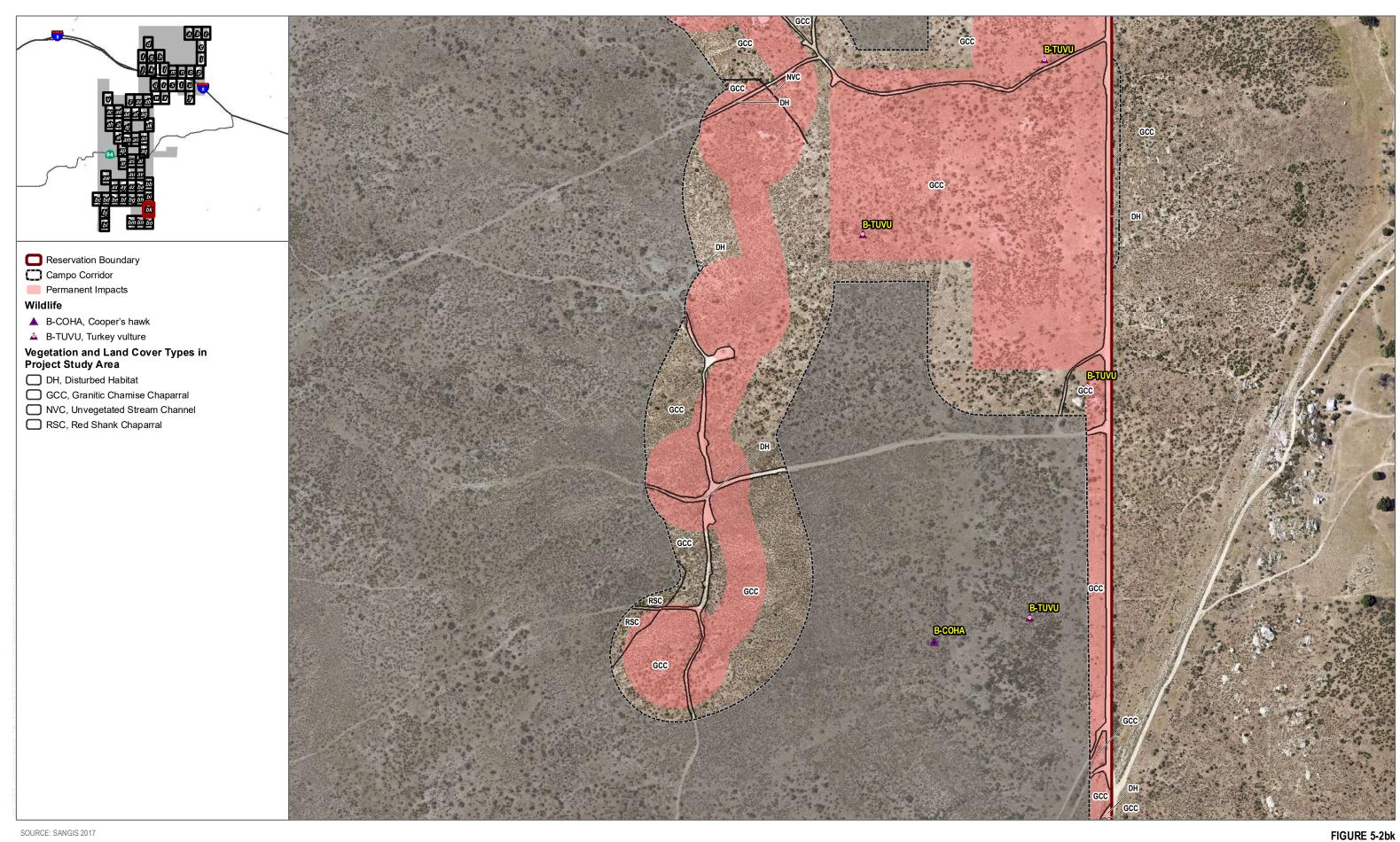




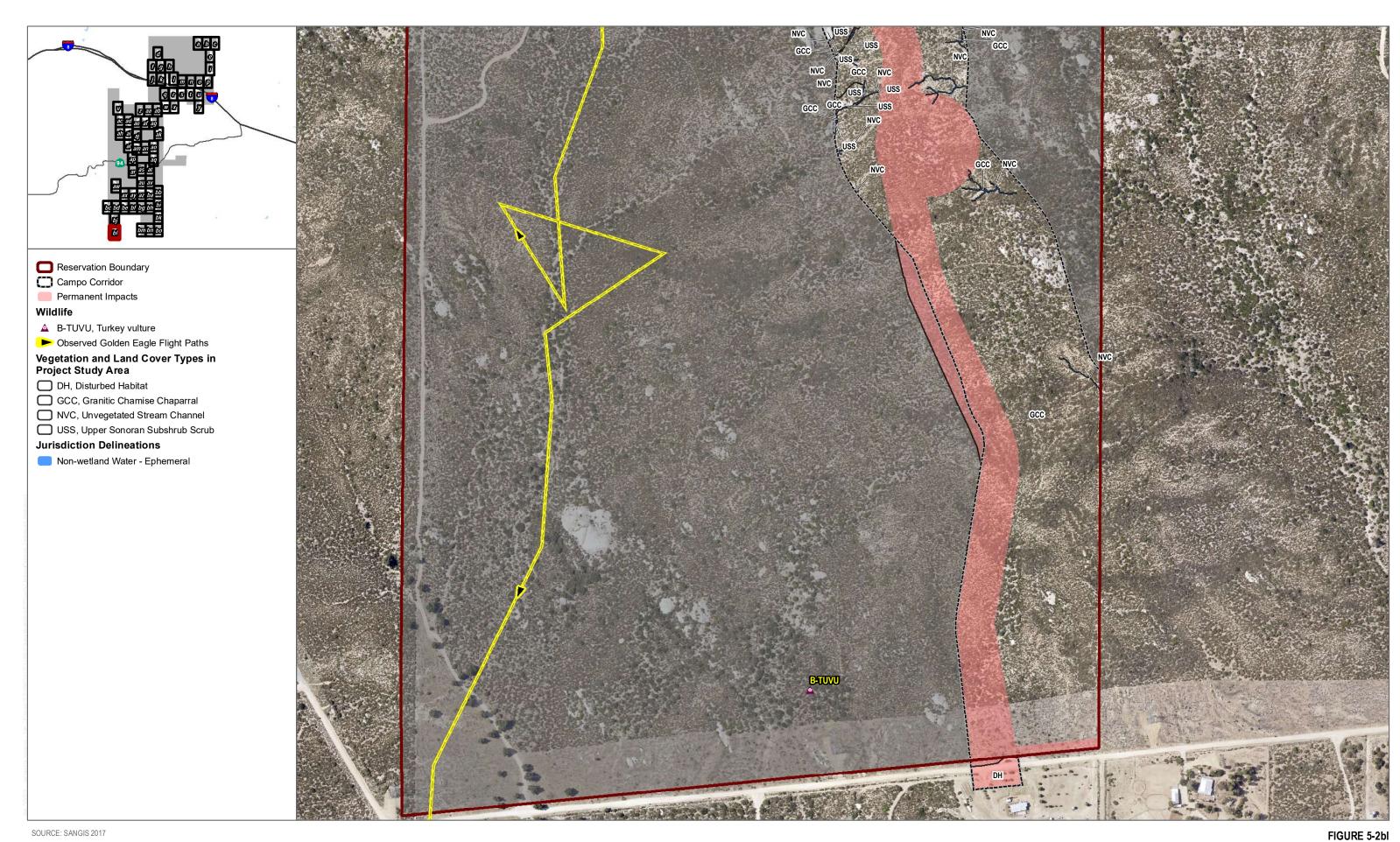
Impacts to Biological Resources - Reservation



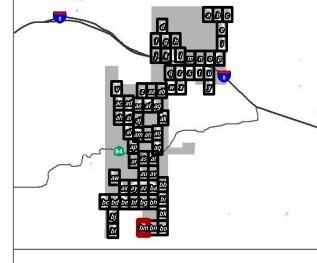




Impacts to Biological Resources - Reservation



**DUDEK 6** 0 162.5 325 Feet



Reservation Boundary
Campo Corridor

Permanent Impacts

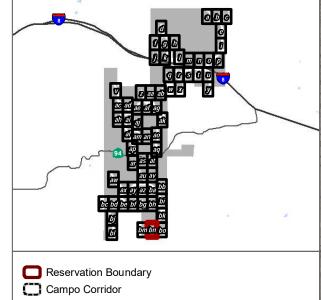
# Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat

GCC, Granitic Chamise Chaparral



SOURCE: SANGIS 2017



Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat

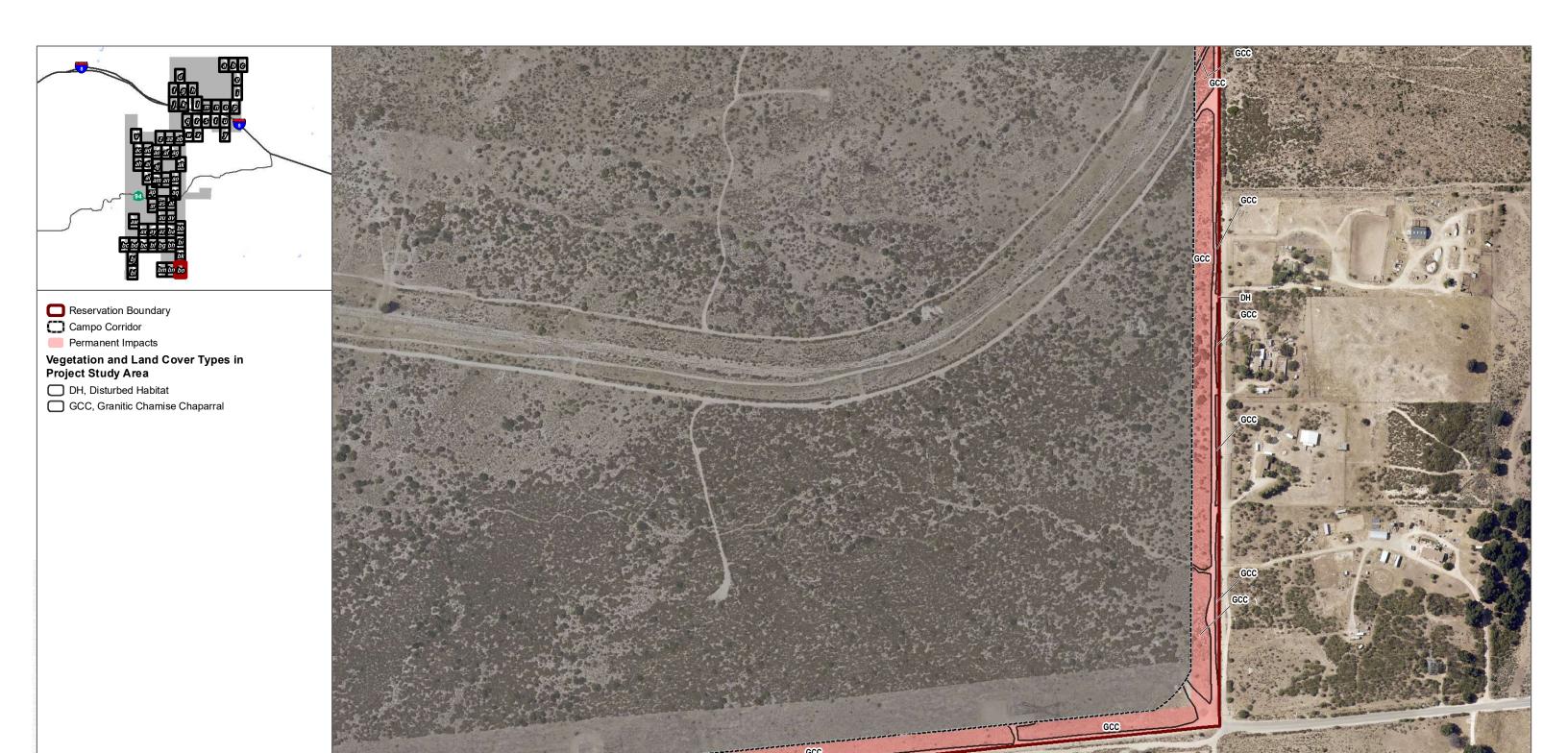
Permanent Impacts

GCC, Granitic Chamise Chaparral



SOURCE: SANGIS 2017

FIGURE 5-2bn



SOURCE: SANGIS 2017



